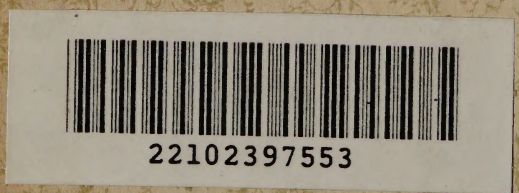
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OF THE

UNIVERSAL MEDICAL SCIENCES

AND

ANALYTICAL INDEX.

A YEARLY REPORT OF THE PROGRESS OF THE GENERAL SANITARY SCIENCES THROUGHOUT THE WORLD.

EDITED BY

CHARLES E. SAJOUS, M.D.,

PARIS,

AND

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ASSISTED BY

OVER TWO HUNDRED CORRESPONDING EDITORS, COLLABORATORS, AND CORRESPONDENTS.

Illustrated with Chromo-Lithographs, Engravings, and Maps.

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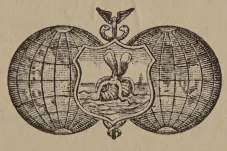

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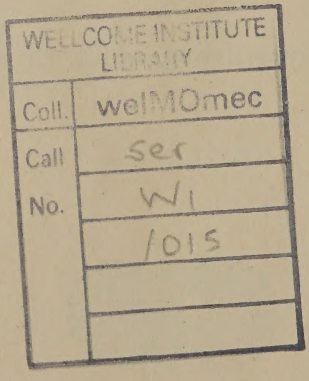

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GENERAL AND EXPERIMENTAL THERAPEUTICS, HYDROTHERAPY, BALNEOLOGY, AND CLIMATOLOGY.

By the Central Editorial Staff.

SUBMITTED FOR COMMENTATION TO

HOBART AMORY HARE, M.D., B.Sc.,

Associate Editor,

PHILADELPHIA.

GENERAL CONSIDERATIONS.

Absorption and Elimination of Drugs by the Stomach.—The influence of age and sexual life on the rapidity with which certain drugs are absorbed in the stomach of the healthy woman has been studied by W. P. Demidowitch, [2043/'95] who made 131 experiments on 49 female subjects varying in age from 8 to 60 years. Iodide of potassium and salicylate of sodium were each used for 49 experiments, and 23 control experiments were made. Absorption of both drugs by the stomach was found to take place more rapidly in little girls than in elderly women; but, while there were no marked variations in infancy or old age, the variations were marked in women during the menstrual epoch. Iodine appeared in the saliva two or three minutes sooner than in the urine, generally at the end of 11.8 minutes in the saliva and 14.3 in the urine. Salicylate of sodium appeared in the saliva in 13.7 minutes. In 7 cases resorption was accelerated a few days before menstruation, in 3 cases in the first days of the menstrual period; while in all cases it was retarded toward the end of the period, gradually increasing afterward. Both drugs were more rapidly absorbed in pregnant than in non-pregnant women of the same age, increasing as pregnancy advanced. It was also more rapid in proportion to the number of previous pregnancies.

The elimination of medicinal substances by the gastric mucous membrane forms the subject of a lengthy paper by Paul Binet, of Geneva, [197 Jan.,'96; 5 May] who states that the gastric mucous membrane normally eliminates a large quantity of chlorine, especially under the form of free hydrochloric acid during digestion or in the state of the alkaline chlorides. An intra-venous injection of sodium chloride notably increases the proportion of fixed chlorine in

the stomachic contents. The passage appears to be less easy when the chlorine is held in an oxygenated combination, as in the alkaline chlorates. Iodine and bromine injected as alkaline iodides and bromides easily pass into the stomach, and their elimination lasts several days after the injection. Antimony, however, after either intra-venous or subcutaneous injection, cannot be determined to be present by either the Marsh test or by electrolysis between zinc and platinum; so that its passage into the stomach is not a constant phenomenon. As for lithium, traces have been found in the water removed from the stomach by lavage after a subcutaneous injection of 15 grains (1 gramme) of lithium chloride. The results of the investigation of strontium have been negative, while those of magnesium have been doubtful. In the last case the quantities obtained have been too small, even after an intra-venous injection of 150 grains (10 grammes), to admit that these are not the result of accident or of contamination of the food. These investigations are important not only as showing how it is possible for re-absorption to take place, but as well to demonstrate that in certain cases of poisoning washing of the stomach may be employed with benefit, even if the poison has not been taken by the mouth, as, for instance, when given hypodermatically or per rectum.

[In this connection the important studies of Alt, Tauba, and Hamburger, upon the elimination of the alkaloids of opium by the stomach, are to be remembered, for they show that if the stomach of persons suffering from opium poisoning be frequently washed out recovery is more apt to occur than if this measure is not carried out.—H. A. H.]

Effect of Food on the Absorption of Drugs.—This subject has been studied experimentally by Th. Jordan, [365 Mar.2,'95] who states that starvation is a condition most likely to modify the action of drugs, and that it is of practical as well as theoretical importance to ascertain its influence, since it plays a prominent rôle in many diseases. Again, certain affections produce pathological changes in the organism similar to those produced by starvation. From fifty experiments on dogs Jordan found that the minimal dose of digitaline which appeared to have any effect was less in starving dogs than in others; the minimum fatal dose was also less, and starving dogs were killed more rapidly than control dogs by the same dose. Fasting for a short time altered but little the action of digitaline on the pulse frequency, but in prolonged fasting the diminished frequency of the heart's pulsation during the first and third periods of the action of digitaline and during the second period the increase in frequency were not so marked as in

the control experiments. The blood-pressure rose very little during the first period, and the transition to the second period occurred gradually, and not suddenly, as it did in the normally-fed dogs. In the fasting dogs the vagus nerve was less easily stimulated, this phenomenon becoming more distinct the longer food was withheld. Jordan thinks that this may account for the diminution in pulse frequency being so little marked during the first period of the action of digitaline in fasting dogs.

Absorption by the Rectum.—Posner [2006 '95; 5 Aug.] has made a number of observations showing the rapidity of absorption of certain substances by the rectum. Certain solutions, like indigo-carmine, methylene-blue, etc., injected into the rectum, appear within fifteen minutes in the bile and urine. Other substances, such as naphthol-green β, were not absorbed at all. The experiments confirm early observations as to the importance of the rectum in absorbing remedies or poisons, and led von Noorden to recommend anew the use of quinine suppositories in whooping-cough.

Benezet [586 No.8,'95] concludes that both iodide of potassium and salicylate of sodium are quite as well absorbed when given by the rectum as when given by the stomach, and that any variations from this rule depend on the individual.

Binz [4 Jan.21,'95] calls attention to cases of poisoning by corrosive sublimate, carbolic acid, opium, chloral, and atropine, administered by the rectum, in large doses, and insists on the necessity of giving the same dose as if the remedy were employed by the mouth.

Combination of Drugs.—Hildebrandt [319 Jan.12,'95; 2 Feb.2] considers the recent researches made into the elimination of undesirable by-effects of certain drugs by means of combination with other drugs. Sparteine has lately been recommended before the administration of chloroform, on account of its action on the heart and vagus. The intensifying action of one drug upon another has hardly been experimentally investigated. The combination of alcohol, menthol, toluol, and ferric perchloride, recommended by Lœffler [2 Nov.10,'94] in the local treatment of diphtheria, is an example of this intensifying action. In the treatment of neuralgia the combination of phenacetin and caffeine has been suggested. Phenacetin, salol, and caffeine have been used with success in sciatica and trigeminal neuralgia. The author has made experiments to ascertain whether the value of combination lies in the increased activity of the principal drug in question. The author found, by exact experiments, that caffeine increases the specific action of antipyrin, but he could not prove that an entirely insufficient dose of antipyrin could be made efficient by the addition of caffeine. The action of quinine sulphate was also shown to be increased by caffeine. By adding

caffeine the effect of phenacetin was increased 20 per cent. As regards the allied hypnotics, caffeine was found to delay and diminish the action of chloral, but with trional no such effect was noted. It has been said that strychnine is no antagonist to the sulphonal group as it is to chloral. The author shows that reflex action is not increased by strychnine in deep chloral narcosis as it is in trional narcosis. He has noted that usually the effect of chloral was somewhat delayed by strychnine, whereas that of trional was not inconsiderably increased and hastened. Sometimes small doses of strychnine have been known to produce a slight hypnotic action in man. The question is why this action should become combined with trional and not with chloral.

THERAPEUTICS.

Acetanilid (*Antifebrin*).—Among the many uses to which acetanilid has been put, other than that of an analgesic, H. A. Hare, editorially, [80 Nov.15,'94] calls attention to its employment in the treatment of obstinate vomiting, particularly when that vomiting seems to be due chiefly to nervous disturbance or marked gastric irritability. In the treatment of the vomiting following operations acetanilid is particularly useful, and the administration of 2 grains (0.13 gramme) every hour until 6 grains (0.39 gramme) are taken will often prevent this unpleasant sequel of operative interference. According to Hare, Brown, of Sioux Falls, S. D., in country practice, leaves acetanilid with the nurse after the operations, with instructions to administer the drug should vomiting after recovery from the anæsthetic be an annoying symptom.

Benjamin Brodnax, of Louisiana, [43 Apr.20,'95] believes acetanilid to possess great merit in warding off chills in intermittent fever. If there is time, before the chill he gives 1½ to 2 grains (0.1 to 0.13 gramme) of calomel in ¼-grain (0.016 gramme) doses half an hour apart; then, according to age, 2 to 6 grains (0.13 to 0.39 gramme) of acetanilid twenty minutes or half an hour before the expected chill. Gentle perspiration with natural sleep usually promptly follow within half an hour; if not, a second dose of equal amount may be given. Brodnax has used acetanilid in several hundred cases without quinine. He has also used acetanilid and boric acid, equal parts, as a dusting-powder in ulcers, burns, etc., and found it very useful. Internally he has used it to correct foul breath, also in dysentery and diarrhœa. G. J. Monroe, of Louisville, [176 Sept.,'95] does not agree with Brodnax as to its efficacy in all these conditions, owing to the prostration which it induces.

Morton, of Philadelphia, [119 Feb.16,'95] maintains that for all conditions in which iodoform is used acetanilid is better. Three grains (0.2

gramme) in an ordinary cocao-butter suppository will relieve at once most cases of irritable hæmorrhoids, and ingrowing toe-nails become tolerable when painted with a saturated alcoholic solution or packed with cotton containing the powder. One thing must be looked out for, however,—viz., its absorption when applied to too large a surface and the consequent systemic effect.

In case of retarded healing of the umbilicus in a private patient Wells [119 June 5,'95] has had good results from acetanilid combined with starch-powder. He also suggests such a combination for irritations surrounding the anus and buttocks in cases of acute and chronic diarrhœas in infants. When the dejecta are highly acid, a small amount of sodium bicarbonate should be added.

Randle C. Rosenberger, of Philadelphia, [119 No.45,'95] reports the case of an infant, 16 days old, suffering from hæmorrhage from the umbilicus. A paroxysmal cough made the hæmorrhage worse. A powder of equal parts of boric acid and acetanilid applied locally twice daily for three days caused the face to become distinctly cyanotic; the lips, ears, finger-tips, and toes bluish; the hands and feet cold, the breathing bordering upon stertor. The condition disappeared on ceasing the application of the powder. According to an editorial writer, [2 Dec.22,'94] acetanilid induces severe symptoms of intoxication more frequently, perhaps, than any other of the aromatic series. Its action on the nervous system is similar to that of antipyrin, and its power of lessening pyrexia is even greater. The fall of temperature is usually accompanied by a more or less profuse perspiration, and it may attain its maximum in two or three hours and finally bring on depression and collapse; sometimes a rebound is ushered in with chilliness and rigor. On the other hand, a few reports show that this drug, like antipyrin, may send the temperature up in an unexpected way; its action on the heart may be very pronounced, and the utmost care is necessary in its administration to children and weekly individuals. Its prolonged administration even in moderate doses may give rise to a decided state of anæmia, the onset of which is often rapid. Many of the toxic symptoms of acetanilid so closely resemble those of aniline poisoning as to suggest the production of that substance in the blood. There is a close relationship between the two bodies, and there is therefore some ground to suspect the occasional presence of aniline in samples.

Acetylphenilhydrazin.—This substance, according to L. Valdameri, [497 Oct.,'94] diminishes the alkalinity of the blood-serum in the healthy man; causes a diminution of the specific gravity, an increase of coagulability, serious alterations in the figured elements; increase in the acidity of the urine, urea, uric acid, urobilin, uro-

toxic power, and peptonuria. These changes are due not to the acid reaction of this substance, but probably to its constitution and molecular structure, since even in neutral or alkaline solution it does not lose its action on the protoplasm of the blood-cells.

Aconite, Aconitine.—Jules Comby, of Paris, [31 Dec.5,'94] [51 Apr.,'95] states that aconite is indicated in all cases of excitability and hyperactivity of the great organic systems, such as neuralgic pains, headache, cardiac hypertrophy with palpitation, spasmodic cough, etc. In the case of children aconite may be given whenever the spasmodic element is clearly marked; in asthma and the asthmatic crises of bronchial adenopathy, in pertussis and other spasmodic coughs, in laryngismus stridulus, in palpitations associated or not with hypertrophy of the heart, and in convulsions. By reason of its sedative and depressant action aconite is contra-indicated in all cases in which prostration exists or threatens. If the respiration is embarrassed, if the heart is in asystole, if the little patient lies somnolent and depressed, then it is not to aconite that we must have recourse, but to tonics and stimulants. In capillary bronchitis, broncho-pneumonia, pneumonia, valvular affections of the heart, pericarditis, and in all cases of collapse occurring in acute infectious diseases, aconite is particularly contra-indicated. It is in the spasmodic and painful affections of the respiratory passages in children that the drug finds its special indication.

Markedly toxic effects from as small a dose as 5 drops (not minims) of tincture of aconite (B. P.) are recorded by J. Dickinson Leigh, of Edinburgh. [36 Jan.,'95]

Weber [14 Mar.20,'95] states that the experimental results of Mouquet, as to the toxicity of aconitine, confirm his own previous researches, and prove once more how dangerous it is to draw conclusions from experiments on small animals and apply them to large ones. From experiments on rabbits and dogs it was thought that as much as 0.02 gramme ($\frac{1}{3}$ grain) of aconitine could be given to the horse, whereas half that dose would be fatal. It is, therefore, illogical to calculate the toxicity of a poison by the weight of an animal, and still more so to draw conclusions as to one species from experiments on another. Aconitine possesses great activity when given by hypodermatic injection; it is quite the reverse when the drug is given by the mouth, the decreased activity being entirely out of proportion to the dose ingested.

Adhesol.—Adhesol is the name given by Dufan [1126 Nov.15] to a limpid fluid, amber in color and of an agreeable odor, and neither toxic nor caustic. Applied to the surface of the skin it evaporates in a few minutes, leaving a transparent elastic covering, and a very adherent layer when applied to the mucous membranes. The

substance is prepared as follows: 350 grammes (11 ounces) of copal resin, 30 grammes (1 ounce) of benzoin, and 30 grammes (1 ounce) of balsam of Peru are left to macerate for two days in a mixture of 100 grammes (3¼ ounces) of ether and 20 grammes (5 drachms) of essence of thyme. It is then filtered and 3 grammes (¾ drachm) of naphthol added. This new adhesive is, according to Dufan, destined to render great service in surgery and dermatology.

Adonis Vernalis.—Having determined experimentally that, during an epileptic fit, there is active cerebral hyperæmia, Bechterew [75 Dec.1,'94] concluded that a drug possessing vaso-constrictor action might be usefully combined with the bromides. He accordingly selected adonis vernalis, preferring it to digitalis because of the cumulative property of the latter. After using the combination for several years he now states that not infrequently it causes an almost immediate cessation of the fits; in all the cases thus treated by him he has obtained a beneficial effect. The addition of codeine has also proved useful in his hands.

Airol.—See Bismuth.

Alcohol.—The action of ethyl-alcohol on the cortical-nerve cells is the subject of a paper by Berkely, [278 July,'95; 213 Dec.,'95] who examined the brains of five rabbits which died, nearly all in convulsions, after being fed for periods varying from six months to over a year upon diluted alcohol. Very slight abnormal alterations were found in the vascular walls, principally a rather indefinite multiplication of the nuclei of the intermediary vessels, slight thickening of the walls, a few grains of hæmatoidin crystals in the surrounding lymph-space, with an occasional hæmorrhage, and a more definite dilatation of the lymph-space surrounding the blood-channels. The most pronounced alterations were found in the nucleolus, which appeared considerably enlarged, roughened, and spongy, with elongated projections from the surface. A large number of the pyramidal cells had on their protoplasmic extensions tumefactions of varying size, commencing apparently near the free extremity of the dendron, and accompanied by a disappearance of the lateral buds of the dendritic processes. The axis-cylinders were found to be perfectly normal. The same alterations, but much more pronounced, were found in the Purkinje cells of the cerebellar cortex. The neurogliar structures were apparently unaffected. From the comparative insignificance of the arterial changes, the writer considers that the destructive lesions observed are to be attributed not to nutritive changes induced by defective supply of nourishment, but to the direct irritant action of the poison on the protoplasm.

The effect of cognac on the assimilation of fat and nitrogen was studied by Schendrikowski and Dombrowski [586 No.41,'94; 673 Feb.,'95] in the clinic of Tchüdnovsky in St. Petersburg, the authors experimenting on healthy individuals submitted to a milk diet. The body-weight was found to increase 370 grammes (12 ounces); the daily quantity of urine diminished to 657 cubic centimetres (1½ pints); the assimilation of nitrogen decreased 0.2 per cent.; the metabolism of nitrogen 5.5 per cent.; fat-assimilation increased 1.26 per cent.; the proportion of water excreted, as compared to that ingested, increased 4.2 per cent.; the losses through skin and lungs increased 1474 grammes (3 pints). (Report of Corresponding Editor Drzewiecki, Warsaw.)

E. Hache [577 Aug.,'95] has had good results from frictions of 10-per-cent. creasoted alcohol in the fever accompanying broncho-pneumonia, acute pleurisy with effusion, and especially in what Landouzy calls pretuberculous fever. Hache used a dessertspoonful of the alcohol each time, rubbing it into the inner surface of the thigh with a piece of fine linen, and then applying the linen as a compress. His patients were all children between 4½ and 12 years. According to Salzwedel, [139 Oct.,'95] under constant application of dressings of 60- to 90-per-cent. alcohol phlegmonous inflammation of the milder sort undergoes almost absorptive resolutions, while severer cases show unusually rapid softening and terminate early in circumscribed abscess containing thin pus. The details of the procedure are as follow: After the skin has been washed with ether and any wound present covered with an antiseptic mull a moderately thick layer of absorbent cotton-wool soaked in alcohol is applied and over it some water-proof material perforated or cut in strips so as to retard, but not wholly prevent, evaporation. The application is renewed daily and should be continued a few days after subsidence has begun.

Liebreich [116 v.9,p.273; 814 July 1,'95] states that, in cases in which it is desired to administer alcohol in a more exact dosage than can be accomplished by the use of the alcoholic beverages of the market, alcohol of U. S. P. strength, mixed with various diluents, may be employed to advantage, varying the quantity of alcohol according to the necessity of each case. The author has found the following to answer in most cases:—

℞ Alcohol,	. . . . .	120 parts.
Tincture orange-peel,	. . . . .	6 parts.
Tincture ginger,	. . . . .	1 part.
Distilled water,	. . . . . up to	200 parts.

August Seibert [51 May,'95] makes the general statement that all forms of gastro-intestinal disturbance in children can be excluded from

the list of diseases in which alcohol is beneficial. In acute cases, even in cholera infantum, large quantities of water with a small amount of black coffee or tea will stimulate better than alcohol, while it is not irritating to the already diseased mucous membrane. It is especially irrational and harmful to administer alcohol in the diarrhœas of children before the stomach and bowels have been freed from all putrefying material. In typhoid fever Seibert rarely gives alcohol to children or adults. In children the disease usually runs a mild course, and relapses seldom occur if proper diet is adhered to. Stimulation is rarely required. The author disapproves of the enormous quantities of alcohol which are frequently given in pneumonia, and does not use it except when collapse threatens or is present. Then he uses it in large doses and in concentrated form. Alcohol-fed children digest less perfectly in pneumonia than others, and do not regain their appetite and digestive power after the attack is over as those do who are treated without it. In scarlatina alcohol is not tolerated by the stomach during the first few days. In severe cases the author has not seen any good results following its use. In mild cases it is out of place. The same is true of measles. In septic conditions during scarlet fever the judicious use of light wine sometimes seems to be beneficial. In diphtheria the free use of alcohol has been universal, but in mild cases the author does not administer it. Whenever the heart seems to fail he uses it in large doses, but only for a short time. As most cases of diphtheria are of mixed infections, it is proper to assume that the heart-weakness may be caused by some of the other germs rather than by the specific bacillus. In emergencies he uses large doses, but for short periods. In nephritis alcohol in large doses can only do harm.

Thos. M. Dolan $^{26}_{\text{Oct.1,'94}}$ feels compelled, by the force of experience, to include alcohol in his list of therapeutic agents, though he agrees that it is largely used without necessity. A. A. Kent, of Lenoir, N. C., $^{43}_{\text{July 5,'96}}$ believes that strychnine will gradually come to replace alcohol in most of the cases in which the latter is now used medicinally.

N. S. Davis, of Chicago, $^{723}_{\text{Oct.,'94}}$ regards the use of alcohol as a stimulant or tonic in the treatment of disease as delusive and more or less injurious. By diminishing the internal distribution of oxygen and the activity of the leucocytes it directly diminishes man's vital resistance to the action of all morbific causes, while, by its anæsthetic effect on the cerebral convolutions, it lulls him into a false feeling of security. C. N. Newman, of Normandy, Tenn., $^{2024}_{\text{'94}}$ places the dietetic value of alcohol at zero. In a therapeutic sense, there are but few conditions in which, with due

regard to the range of its influence, it may be administered with benefit.

[The general practitioner who now and again stands aghast when a leader in medical thought asserts that well-tried remedies are useless, can always comfort himself with the thought that these persons are enthusiasts, and that the safe course to pursue in practice is to give the remedies so decried in well-selected cases, carefully, intelligently, and rationally. The history of the world has proved that alcohol has powers for good and evil, but distinctly indicates that in the hands of the trained physician it is a remedy for good. Alcohol will continue to be regarded as a useful drug even though one or two are vehement in its denunciation.—H. A. H.]

Aluminium.—Koppel [116 Nov.,'95] gives details of three new preparations of aluminium,—viz., boral, cutol, and soluble cutol. The first is a combination of aluminium, boric acid, and tartaric acid, and forms white crystals, soluble in water. Cutol is a combination of aluminium, boric acid, and tannic acid, and is a brownish, insoluble powder. It combines with tartaric acid to form soluble cutol. The indications for the use of boral are limited. Cutol may be prescribed for ointment and is of great service in the treatment of weeping eczema and pruriginous affections in the following formula:—

℞ Cutol,		4 grammes (1 drachm).
Olive-oil,		10 grammes (2½ drachms).
Lanolin,	q. s. to make	40 grammes (1¼ ounces).

When the secretion has disappeared the following powder may be used:—

℞ Cutol,		
Oxide of zinc,		
Talc,	of each	10 grammes (2½ drachms).

Soluble cutol gives good results in the treatment of burns of the second degree, and a solution of soluble cutol and glycerin, 1 to 10, applied locally, causes rapid retrogression of follicular angina. The same solution may be employed in catarrhal metritis. For hæmorrhoids an ointment containing 10 per cent. of cutol may be applied, while fissures of the hands may be treated by applications of

℞ Cutol,		3 grammes (¾ drachm).
Oil of sweet almonds,		
Lanolin,	of each	15 grammes (3¾ drachms).
Orange-flower water,		10 grammes (2½ fluidrachms).

Ammonium Chloride.—Gourinsky, [1101 v.3,No.3,'94; 2 Mar.30,'95] of St. Petersburg, after some experiments on frogs and pigeons poisoned with

ammonium chloride, publishes the following conclusions: 1. In frogs whose spinal cord has been divided below the medulla oblongata ammonium chloride produces from the first a marked augmentation of reflex acts. 2. In frogs deprived of certain parts of the central nervous system (spinal cord, medulla oblongata, and cerebellum only being retained) this augmentation is preceded by a marked depression. 3. In normal frogs and pigeons chloride of ammonium produces at first depression of the central nervous system, then convulsions,—that is, the higher centres exercise a great inhibitory influence on the spinal reflexes. 4. When the poison is introduced rapidly the first stage (that of depression) is but slightly marked, and soon gives place to the second stage (that of irritation, ushered in by convulsions). 5. When the poison is introduced slowly the general nervous depression is well marked and lasts a long time. 6. In frogs and pigeons deprived of the cerebral hemispheres only, whatever be the method of introducing the poison, convulsions are not preceded by depression, but the latter is sometimes replaced by irritability. 7. All the facts can be explained only by the reciprocal action of the nervous centres on each other, modified by the poison.

Chloride-of-ammonium vapor is recommended in middle-ear disease by Jas. MacMunn.$^{2}_{\text{Oct.19,'95}}$ He attaches a Richardson continuous spray apparatus by the proximal end of the elastic ball, compressed by the hand to the distributing-tube of a Vereker chloride-of-ammonium inhaler and, lastly, a Eustachian catheter to the distributing-end of the spray apparatus. A few squeezes must first be given to the ball so as to fill the apparatus with gas before introducing the catheter. Again, if such a catheter, or even a glass tube drawn to a point, be affixed to a Higginson syringe, one of the best and handiest means of syringing the ear will be afforded. The small and practically continuous jet, applied with any force desirable, almost immediately tunnels a hole in the hardest cerumen and quickly allows of that reflex current necessary for its removal, doing away with the need for clumsy ear-syringes.

At the meeting of the American Pharmaceutical Association the following method of preparing elixir of ammonium valerianate was recommended by S. C. Davis$^{814}_{\text{Oct.15,'94}}$ as being an improvement on the procedure of the National Formulary for this preparation :—

℞ Ammonium valerianate,	.	256 grains	(16.6 grammes).
Ammonia-water (U. S. P.),	.	3 fluidrachms	(11.2 c.cm.).
Distilled water, . . .	.	5 fluidrachms	(18.7 c.cm.).
Chloroform, . . .	.	6 minims	(0.4 c.cm.).
Tincture vanilla,			
Comp. tinct. cudbear,	āā	2 fluidrachms	(7.5 c.cm.).
Aromatic elixir, .	to make	16 fluidounces	(473.0 c.cm.).

Dissolve the ammonium valerianate in the mixture of the waters and add to 12 fluidounces (354 cubic centimetres) of aromatic elixir; then add the chloroform, tincture of vanilla, and compound tincture of cudbear, and, finally, enough aromatic elixir to make 1 pint (473 cubic centimetres).

Ammonium Bromide.—See Bromides.

Amygdophenin. — This derivative of paramidophenol is a grayish-white powder, slightly soluble in water, and is recommended by Stüve, of Berlin, [319 Nov.16,'95] in articular rheumatism and neuralgia. The dose is from 1 to 6 grammes (¼ to 1½ drachms) daily; doses of 5 grammes (1¼ drachms) sometimes produce slight vertigo. The author also found the remedy of value in cases of headache due to central nervous disease. In articular rheumatism no other treatment was necessary. As an antipyretic the drug gave no results.

Analgen.—Maas [114 B.23,H.1,2,'95] has studied this drug, experimentally and clinically, and finds that it has considerable power as an antipyretic and germicide. In divided doses of 5 to 6 grammes (1¼ to 1½ drachms) daily it causes a fall of temperature of from 2° to 3° C., occurring within half an hour after the first dose of 1 or 2 grammes (15½ to 31 grains), and continuing for three days, often accompanied by profuse perspiration. Phthisical patients experience a peculiar feeling of well-being from its use. In doses of 3 or 4 grammes (¾ to 1 drachm) daily it acts remarkably on muscular or acute articular rheumatism, recovery being assured after the remedy has been taken for four or five days. It does not, however, prevent relapses or complications. It is also of value in recent cases of neuralgia, visceral pain, headache of chlorosis, and lancinating pains of tabes. The maximum single dose of analgen is given by A. Schreiber, of Neukirch, [814 Jan.25,'95] as 1 gramme (15½ grains), and the maximum daily dose as 4 grammes (1 drachm).

Anhalonium Lewinii (*Mescal Button*).—The mescal button is obtained from a plant which grows in a valley of the Rio Grande, in Mexico. The tops of the plants when dried constitute the commercial form of *Anhalonium Lewinii*, first described by Lewin. They are brownish in color, circular, and from one to one and a half inches in diameter. The button is hard and can be pulverized in the mortar with difficulty. In the mouth, however, under the action of the saliva, it swells and rapidly becomes soft, giving a nauseous and bitter taste, with a marked sensation of tingling in the fauces. According to D. W. Prentiss and F. P. Morgan, [80 Sept.15,'95; 59 Oct.19,'95] the most striking was the development of visions, ranging from ill-defined flashes of color to most beautiful figures, landscapes, dances, etc. The principal feature of the

visions was the color-effect. The pleasurable effect of the drug seemed to be mainly due to the development of these entrancing visions. The effect upon the muscular system was depressing, and there was at no time any general stimulation or intoxication, such as is produced by alcohol. Dilatation of the pupil was well marked in all cases, and this persisted for twenty-four hours. Partial anæsthesia of the skin was present in three of the cases; the heart's action, if anything, was somewhat depressed; the respiration was unaffected; the stomach was sometimes irritated and nausea was felt. The drug is not a sleep-producing one, but has rather the contrary effect. No constant disturbance of the pulse, skin, or the temperature was noted. The drug seems to have an effect to some extent resembling that of Indian hemp and in a slight degree that of cocaine. Lewin reports one case in which the drug was taken experimentally by an adult, and in which it produced a rapid rise of pulse, headache, and difficulty in respiration, which was so great that the patient's life was imperiled and he became unconscious.

In a later paper [80 Jan.15,'96] the same authors state that the conditions in which it seems probable that the use of mescal buttons will produce beneficial results are the following: In general "nervousness," nervous headache, nervous irritable cough, abdominal pain due to colic or griping of the intestine, hysterical manifestations, and in other similar affections where an antispasmodic is indicated; as a cerebral stimulant in depressed conditions of the mind,—hypochondriasis, melancholia, and allied conditions; as a substitute for opium and chloral in conditions of great nervous irritability or restlessness, active delirium and mania, and in insomnia caused by pain, in color-blindness. The following preparations may be used: Tinctura anhalonii (10 per cent.). Dose, 1 to 2 teaspoonfuls (4 to 8 grammes); extractum anhalonii fluidum (100 per cent.). Dose, $7\frac{3}{4}$ to $15\frac{1}{2}$ minims (0.5 to 1 gramme). Pulvis anhalonii. Dose, 0.5 to 1 gramme ($7\frac{3}{4}$ to $15\frac{1}{2}$ grains). The tincture should be made according to the process prescribed in the United States Pharmacopœia for the preparation of tinctures. It should be of 10-per-cent. strength. The fluid extract should be made 100-per-cent. strength and in accordance with the method prescribed in the United States Pharmacopœia for the preparation of fluid extracts. The taste of these liquid preparations is somewhat disagreeable, unless it be disguised by a suitable vehicle, such as a mixture of fluid extract licorice and elixir yerba santa. The powdered drug is best administered in wafer-paper, cachets, or capsules.

Aniline Dyes.—See Methyl-Blue, Pyoktanin.

Animal Extracts (*Organotherapy*).—The uses and abuses of animal extracts as medicines are considered by Henry Hun, [1 Jan.12,'95] who formulates the following conclusions: 1. That the attempt to cure a diseased organ by supplying a healthy one in the food has no support either in theory or in practice. Such therapeutics is an abuse of the animal extracts. 2. That the administration of extract of the testicles has a slight support in theory, but has no sufficient support in practice, and must be regarded as an abuse of animal extracts. 3. That nuclein has not been sufficiently tried to allow us to form any estimate of its value. 4. That the digestive ferments have a distinct, but limited, therapeutic value. Their administration is in many cases useful, but often degenerates into an abuse. 5. That the extract of the thyroid gland is of the greatest value in myxœdema and cretinism, of decided value in the reduction of obesity, and probably of some value in the treatment of insanity. It must certainly be classed among the useful extracts. 6. That bone-marrow will probably be found to be of value in cases of anæmia and leucocythæmia and perhaps in cases of chlorosis also. It is as yet too early to decide as to its uses and abuses. 7. That, in the antitoxin extracted from the blood-serum, or in the "blood-serum therapeutics," as it is often called, we have decided evidence that we possess an agent of great value in the treatment of diphtheria, and we have every reason to hope that it will prove of value in the treatment of all forms of the infectious diseases. It is a line of treatment that can hardly be abused and seems to have a wide field of great usefulness.

In order to discover the physiological active principle of the thyroid gland Sigmund Fränkel [650 Nov.28,'95; 6 Dec.14] experimented with known quantities of cold and warm extracts of the thyroid glands of sheep. The albuminous bodies were precipitated by acetic acid, and by feeding experiments he ascertained that the precipitate had no marked effect, while the filtrate that was obtained possessed the well-known properties of the thyroid gland, or, in other words, contained the physiological active principle. He has provisionally named the substance "thyreo-antitoxin." In experimenting on animals Fränkel failed to find the fall of blood-pressure demonstrated by Schäffer upon the intra-venous injection of thyroid extract, but acceleration of the pulse-rate was well marked. He also found that the hearts of frogs poisoned by muscarine, which had ceased to beat, could again be brought to act by dropping on them a few drops of a watery solution of thyreo-antitoxin. In animals, too, after the thyroid glands had been extirpated and convulsions and other symptoms had followed, temporary recovery followed subcutaneous injections of a 1-per-cent. watery solution of the remedy.

These experiments agree with those made by Gley, of Paris, with injections of thyroid juice. Fränkel maintains, therefore, that he has demonstrated the isolation of the active principles of the thyroid gland, and that it is a pure chemical body, with well-defined chemical properties and occurring in considerable quantity in the gland. He anticipates that we shall eventually be able to administer this particular antitoxin in exact doses. As he has isolated it, the body is odorless and with a taste which "reminds one of the extract of beef rather than of the thyroid or its extracts." Another advantage he claims for the antitoxin is that we shall be able to assure ourselves of its purity, and that it is free from ptomaines, for a case of poisoning has recently been reported through feeding with a thyroid preparation. It must be remembered, also, that many of these preparations offered for sale are rendered inactive through faulty methods of preparation.

Toepfer $^{6}_{\text{Mar.7,'96}}$ has published some experiments on "thyreoiodin,"—a substance isolated some time ago by Baumann, who has made the important discovery that iodine is a normal constituent of the thyroid gland in the sheep. "Thyreoiodin" contains 9.3 per cent. of iodine, and is prepared by boiling the gland with 10 per cent. of sulphuric acid and extracting with alcohol. It possesses not only the same physiological effect as thyroid extract, but also as the whole gland, and it becomes inert when the iodine is removed from it. In 30 grammes (1 ounce) of sheep's thyroid gland there was 0.009 gramme ($\frac{1}{7}$ grain) of iodine.

E. Hertoghe $^{52}_{\text{No.9,'95}}$; $^{5}_{\text{Mar.}}$ has studied the influence of thyroid products upon growth, noting that, after their ingestion by children suffering from congenital or acquired myxœdema, the growth, even if checked for a long time, is immediately recommenced with energy. From nine observations he concludes that (1) all have been profoundly influenced by the ingestion of thyroid, having increased in height without regard to the age (6, 14, 18, 27 years) to which they had reached; (2) their intelligence has expanded; (3) with all, the body-weight has commenced by diminishing, then increased *pari passu* with the gain in height, and finally surpassed the initial weight. The effect of this substance on children who were not the subjects of myxœdema, but whose growth was retarded, was tested in 6 cases,—2 of chronic albuminuria, 2 of rachitis, 1 of precocious establishment of menstruation, and 1 of extreme congenital debility. Under the influence of thyroid product growth again commenced, in some of the cases very rapidly.

Dennig, of Tübingen, $^{34}_{\text{No.20,'95}}$ has shown, from exact physiological researches in one case, that the influence of thyroid feeding varies

in different cases. In some the influence is very great; in others it does not exist at all.

From a study of a series of sixty cases it is concluded by Bruce [166 Oct.,'94] that the action of thyroid extract is complex. It undoubtedly produces a mild, feverish condition, the action and reaction of which is often of considerable benefit. It is a direct cerebral stimulant. There is a strong probability that at some periods of life the administration of the thyroid supplies some substance necessary to the bodily economy. Lanz, of Bern, [214 No.10,'95] from experiments on animals, has proved that the thyroid gland of swine is as efficacious as that of calves and sheep.

Zum Busch [1157 Sept.,'95; 2 Sept.28] gives the results of thyroid feeding observed by him in various diseases. He likewise tried it for a considerable time in two healthy men, and noticed in them no effect at all except slight change in the body-weight and in the amount of urine and urea excreted. These negative results in healthy people correspond with the experience of Leichtenstern and Wendelstadt. On the other hand, in patients with cutaneous affections various general effects were observed. The loss of weight was usually considerable, especially at the beginning of the treatment; there was considerable increase in the amount of urine and of urea excreted—the amount was often doubled—and the pulse-frequency was often increased by ten or twenty beats. Disagreeable symptoms were seldom observed, but, when seen, they consisted in great frequency of pulse, palpitation, headache, faintness, tremors, and sweating. The appetite was usually good, but vomiting occurred in two cases, both of children treated with rather large doses. Contrary to the experience of Ewald, thyroid feeding never produced albuminuria or glycosuria. In one case, although temporary glycosuria had been observed before the thyroid feeding was commenced, it never re-appeared during the treatment. In all the five cases of myxœdema treated the improvement was rapid and striking. The fifth case was particularly interesting. The patient was a woman, aged 21, who was admitted with the symptoms of Graves's disease, and, while under observation, the symptoms of myxœdema supervened and partially replaced those of the Graves disease. The myxœdema was got rid of by the thyroid treatment, but the exophthalmos and Graefe's sign were left as remnants of the Graves disease. Out of 24 cases of psoriasis 11 were cured and 7 were improved by the treatment. In a few cases even tolerably large doses seemed to have hardly any effect. It does not seem at present possible to distinguish beforehand those cases of psoriasis which are benefited by the treatment from those which derive no benefit. Out of 12 cases of chronic

eczema 9 were cured, 2 improved, and 1 got worse under the treatment. At the beginning of the treatment some of the cases exhibited an apparent exacerbation before improvement showed itself. A woman, aged 25, with slight ichthyosis, improved somewhat under treatment. Two cases of epithelioma and 3 of chronic ulceration of the leg remained uninfluenced by the treatment. Four cases of lupus vulgaris were treated. The thyroidin appears, in this affection, to cause a local reaction somewhat resembling, but milder than, that caused by tuberculin. The lupous tubercles gradually disappear in some places, and fresh ones, unnoticed before, spring up in other places. The diseased tissue becomes sharply defined under thyroid feeding, and thus, perhaps, operative treatment may be facilitated. Zum Busch believes that, with proper care, thyroid treatment in skin affections is not more dangerous than that with arsenic or many other drugs. He thinks it may sometimes be of service where other methods have failed, and that in chronic skin eruptions the combination of local external treatment with internal thyroid treatment is likely to give good results.

Charrin [3 Jan.2,'95; 673 Feb.,'95] treated a patient with obesity by thyroid juice, giving 1 gramme (15½ minims) daily, either by subcutaneous injection or by the mouth. In three months her weight fell from 133 to 115 kilogrammes (292 to 253 pounds). As soon as the treatment was discontinued the loss of flesh also ceased, and when the thyroid extract was resumed a daily loss of 50 to 130 grammes (1⅔ to 4⅓ ounces) was observed, this becoming less after a time. A second case treated showed similar, but less-marked, results, while in a third no effect could be noted. Charrin stated that similar cases in which the remedy had had no effect had been observed by others, and that the inconstancy of results perhaps depended upon the different forms of obesity, upon the insufficiency of the treatment, or upon the extract used, which may not have been genuine. His patients, who were not myxœdematous, showed no signs of that disease during the treatment, which was carefully carried out.

Frederick Guttmann, of New York, [814 May 15,'95] regards the thyroid gland of the sheep as a specific in obesity, free from danger and injurious after-effects, and the beneficial results of which appear within a few months from beginning of treatment. The sole risk is in beginning with large doses, as palpitations and fainting fits are possible until the patient is well accustomed to the drug. The agent is, however, not to be used indiscriminately. Similar views are expressed by René Buquin. [2000 '95] Knöpfelmacher [8 Oct.,'95] reports that in the treatment of four rachitic children by ingestion of thyroid

gland there was no result. In 21 cases of goitre, in 11, of from 2 to 17 years of age, there was considerable diminution, but not complete disappearance, of the tumor; in 5, from 12 to 21 years of age, the amelioration was slight, and in 5 cases there was no result.

J. W. White, of Philadelphia, [112] Aug.,'95 reports the following case: In March, 1894, a young girl who was dressing in front of a mirror in a private carriage attached to a train was thrown violently forward, her face striking the mirror, which was broken into many pieces. A large crescentic wound of the soft parts of the right cheek was inflicted. The wound was quickly cleansed and the edges brought carefully into apposition with interrupted sutures. Rapid union entirely by first intention followed, and the scar appeared satisfactory. In the following October it had become greatly hypertrophied and caused great disfigurement. Absorbent ointments, pressure by means of plaster, and other means of local treatment having been tried to no purpose, she was (in January, 1895) put upon thyroid extract, from 2 to 4 tablets—each tablet containing 5 grains (0.32 gramme)—being given daily. All local treatment was discontinued, the scar being only covered with a film of collodion to prevent abrasion or irritation and to keep up gentle pressure. On several occasions marked elevation of temperature and quickening of pulse occurred, once to an alarming extent; but in a few weeks a perceptible change was noted, and at the end of about six weeks the scar had in almost its entire extent come down to the level of the surrounding skin and the dense base had disappeared. White does not claim that this was a case of true keloid, but he points out that the clinical distinction between keloid growths and hypertrophied cicatrices is, after all, based more on the size of the growth and on its course than upon any definite differences.

A. Poehl, of Berlin, [114] B.26,H.1,2,'95; [1170] Sept.,'95 has shown on various occasions that there exists in the organism a chemical ferment, productive of oxygen, which he has described as spermin. He found that this basic element is present in all the different parts of the organism: prostate, thymus, thyroid, ovaries, urine, etc. Spermin, consequently, exists not only in the male sex, but in women as well. This extensive distribution of spermin points to the importance of the part it plays, and suggests that it is directly concerned in the reconstruction of the various tissues. On the other hand, he has shown that spermin, by a catalytic action, renders more active the oxidation of all the tissues, as evidenced by a number of experiments. It is only the soluble combinations which possess catalytic properties. The moment spermin is converted into an insoluble

combination, such as phosphate, it becomes inert. This phosphate of spermin is either amorphous or crystalline (Charcot-Leyden crystals). The excellent results obtained from the use of organic extracts are, in Poehl's opinion, due to the spermin contained in the liquids of the various tissues, for it is the oxidizing action of spermin which plays the principal rôle in this effect. The chemical action of this substance may, therefore, be summarized as follows: In its soluble form the spermin existing in the organism facilitates oxidation by catalytic action, thus ridding the tissues of all the products of disassimilation, etc. Absorption of spermin is manifested by increase of urea, chlorides, etc., in the urine. The re-establishment of organic oxidation consequently results in increasing the alkalinity of the blood when this has been diminished by pathological influences. The artificial production by spermin of leucocytosis immunizes against infection. On comparing with each other (1) diseases in which the alkalinity of the blood is subnormal, (2) diseases in which the Charcot-Leyden crystals occur, and (3) diseases in which spermin exerts a curative effect, it will be found that these three classes coincide,—a fact which goes to prove the importance of this method of treatment.

G. E. Krieger, of Chicago, $\frac{59}{\text{Oct. 6, '94}}$ has had favorable results from the use of spermin in sterilized solutions. He made use of some specimens obtained from Poehl, and also of spermin prepared in his own laboratory, the effects being identical. The dose is from 5 to 10 minims (0.32 to 0.65 gramme) (adults), 3 to 6 minims (0.2 to 0.39 gramme) (children), hypodermatically, increasing 1 minim each day until the full dose of 15 minims (1 gramme) is reached. The site of the injection is not important so long as strict asepsis is observed. No untoward effects follow, and the treatment should be continued for at least two weeks before any conclusion may be made as to its value.

H. Grey Edwards $\frac{2}{\text{June 8, '95}}$ has given orchitic extract in a large number of cases, with excellent results. All cases of nervous disease, without organic lesions, which are benefited by bromide of potassium, will, according to this author, receive ten times as much good from orchitic extract. In old men in whom the system suffers from the want of the vital fluid secreted by the testicle, which would be re-absorbed into the blood in a new form, the extract is of great value, enabling them to devote themselves to business with increased vigor, and to endure much more physical exercise than they were capable of doing prior to taking it. He cites several cases which he considers types of the conditions which are benefited by this treatment.

The results of the use of bone-marrow by Frazer and others

have induced A. McLane Hamilton [1 Jan.12,'95; 451 Feb.] to experiment with this agent, and he has been impressed with its efficacy in certain conditions dependent upon a depraved condition of the blood. The cases selected for treatment presented varying forms of red-corpuscle poverty, with diminution of hæmoglobin, most of which were obstinate, and had resisted arsenic, iron, and other hæmiants. In every case a careful determination was made before, during, and after treatment, of both the red corpuscles and the amount of hæmoglobin. In two or three cases poikilocytosis was present. Under the treatment a great and rapid prolification of the red corpuscles was noted, in some cases the normal number being greatly exceeded. He thinks it reasonable to ascribe this rapid and extraordinary increase to the direct influence of the medullary extract. The immediate improvement in the state of the blood and the subsidence of the symptoms are no less wonderful than the improvement which follows the use of thyroidal extract in myxœdema, though the gain is more permanent than in the latter. He made use of two forms of marrow,—that obtained from the long bones, which was given raw, and that from the short ribs, which was given as a glyceride. He thinks his best results were obtained from the marrow contained in the ribs of a young animal. The coarse marrow from the long bones contains a great deal of fat, which, while beneficial in itself, does not contain the specific virtues to the same extent as the finer medullary substance. The glyceride was administered alone, and, as a rule, the good effects were apparent within a few days. In only one case did it fail.

John S. Billings, Jr., [764 v.5,No.43] treated 4 cases in Johns Hopkins Hospital, 2 of anæmia and 2 of chlorosis. He doubts, from his results, whether the bone-marrow treatment is superior to iron.

T. K. Alexeiew [35 Nov.16,'95; 814 Dec.1] has employed bone-marrow in 2 cases of malarial cachexia, in 1 of hæmorrhagic purpura with great debility, and in 1 of leukæmia. In these cases all modes of treatment previously employed had completely failed, and it was not until bone-marrow was given to the patients that the latter began to improve in health. The remedy was given in daily doses of 45 to 90 grammes (1½ to 3 ounces), either raw or in sandwiches or in a mixture composed of calves' bone-marrow, 90 grammes (3 ounces); port-wine, 30 grammes (1 ounce); glycerin, 30 grammes (1 ounce); and gelatin, 20 grammes (5 drachms). He has noticed that the glycerin contained in the above sometimes produces diarrhœa, and in such cases it is well to replace the glycerin by some fresh cream. The two cases of malarial cachexia were rapidly cured by the injection of bone-marrow; the spleen soon regained its normal dimensions. In the case of leukæmia the

state of the patient was a very grave one before the bone-marrow treatment was begun; the spleen completely filled the left side of the abdomen as far down as the Fallopian ligaments; the blood resembled water in which meat has been washed, and contained but 2,000,000 of formed elements to the cubic millimetre, in the proportion of 1 white to from 20 to 30 red corpuscles; there was extensive œdema, and epistaxis frequently occurred. Under the influence of the ingestion of bone-marrow the œdema disappeared, the epistaxis ceased, the skin and the mucous membrane assumed a healthier color, the number of formed elements doubled,—there being then present 1 white to every 100 red corpuscles,—and the spleen decreased in size so that it did not reach beyond the umbilicus.

Gourfein, of Geneva, $^{197}_{\text{Oct.,'95}}$; $^{2}_{\text{Dec.16}}$ gives the results of his researches with a toxic substance extracted from the suprarenal capsules. The method at first used to isolate the substance was to precipitate a glycerin extract of the capsules by alcohol. Later, as the glycerin itself proved to some extent toxic, he advised the following method: Cut up and triturate the suprarenal capsules of oxen, calves, or sheep in a mortar with a little water; pour several volumes of warm water over them, and leave in a water-bath for a quarter of an hour; filter and add to the filtrate the liquid obtained by pressure from the residue on the filter; evaporate in a water-bath to a syrupy consistence, and add four times its volume of alcohol; leave the mixture for twenty-four hours in a cool place and filter. The precipitate by alcohol (chiefly albuminoids) when redissolved in water and injected into animals subcutaneously is quite inactive, but the residue obtained after evaporating the alcoholic liquid is very toxic. This substance, which is not destroyed by heat, injected hypodermatically into animals produces a series of constant symptoms. Green frogs, after an injection of $\frac{1}{4}$ Pravaz syringe, become motionless immediately, but are not paralyzed, as mechanical irritation of the foot causes reflex action. This weakness increases; if placed on the back the animals cannot turn over again. Respiration is first slowed, then accelerated and weakened, and finally stops. The heart is affected later; in twenty experiments the auricles continued beating twenty to thirty minutes after death. The spinal cord and motor nerves do not lose their electrical excitability for three or four hours after death, which ensues a quarter to three hours after the injection. In those frogs where the glycerin extract was used, tetanic convulsions also set in. These proved to be due to the glycerin, as in control experiments where glycerin and water (1 to 4) was injected the same convulsions occurred without being fatal. The first symptom, after

injecting from ½ to 1 Pravaz syringe of the extract subcutaneously in white rats, mice, guinea-pigs, and rabbits, is dyspnœa, which progresses till death takes place. Inspiration is prolonged; expiration is short and forcible. Extreme weakness, caused by depression of the central nervous system, is present, but no paralysis. General sensation and the sensorium are intact. Electrical excitability of motor nerves lasts fifteen to eighteen minutes post-mortem, but the vagi are paralyzed. If artificial respiration is used in rabbits they die later through paralysis of the heart. Some animals vomit repeatedly soon after the injection, this being preceded by copious salivation. The toxic substance, however, is not excreted in the saliva as when precipitated by alcohol; evaporated and injected into mice hypodermatically it produces no symptoms. No diarrhœa or intestinal symptoms were observed. In all the experiments on mammals paralysis of the respiratory centre was the principal cause of death. Convulsions were frequently present, but were asphyxial. Post-mortem the lungs are found congested, the heart flaccid in diastole, the stomach and intestine sometimes hyperæmic. Twenty control experiments, where hypodermatic injections of extracts of spleen and muscles of the same animals, and prepared in the same way as the suprarenal extract were given to cold- and warm- blooded animals, proved that these produce at most a slight malaise. The proportion of the active substance present in a given quantity of capsules is very variable, the length of time the animals survive the injection being proportional to this toxicity. Cold-blooded animals are less sensitive to the extract than warm, probably owing to their cutaneous respiration. The author's results differ from some of those obtained by Gluzinski, $\frac{8}{\text{No.14,'95}}$ who observed, immediately after the intra-venous injection of a glycerin extract, paraplegia with anæsthesia of the posterior limbs and slight convulsions or even opisthotonos in the anterior half of the body, while hypodermatic injection caused only a slight illness with rigors. Vomiting is not mentioned by him.

G. Oliver and E. A. Schäfer, $\frac{178}{\text{Apr.,'95}}$ of London, refer to some earlier experiments showing that when an extract—whether prepared with water, alcohol, or glycerin—of the suprarenal bodies of the calf, sheep, or dog was injected, even in very small quantities, into a vein in a dog or a rabbit the following pronounced physiological effects were produced in a few seconds: 1. Extreme contraction of the arteries, which was shown to be of peripheral origin. 2. A remarkable and rapid rise of the arterial blood-pressure, which took place in spite of powerful cardiac inhibition, and became farther augmented when the vagi were cut. 3. Central

vagous stimulation so pronounced that the auricles came to a complete stand-still for a time, although the ventricles continued to contract, but with a slow, independent rhythm. 4. Great acceleration and augmentation of the contraction of the auricles and ventricles after section of the vagi,—the auricular augmentation being especially marked. 5. Respiration only slightly affected, becoming shallower.

[The use of the various animal extracts in different diseases is considered under the disease proper.]

Nuclein is the principal proteid found in the nuclei of cells, while the various nucleo-albumins—such as the caseinogen of milk and the so-called mucin of the bile—render a residue of insoluble nuclein after digestion. Lately this substance has been credited with a strong antitoxic power,—an antitoxic power which it exerts indiscriminately. How it acts is not definitely known, but it is supposed to render inert the toxins produced by organisms in such diverse diseases as tuberculosis, scarlet fever, pneumonia, auto-intoxication, and even rheumatism. W. Jacobsohn $\frac{59}{\text{July 20,'95}}$ gives details of several cases of scarlet fever and measles in which the injection of a nuclein solution seemed to abort the attack and quell the complications. M. O. Teigen $\frac{80}{\text{June 15,'95}}$ and R. W. Wilcox $\frac{80}{\text{Aug. 15,'95}}$ lay stress on the power of nuclein to increase the number of leucocytes in the blood,—a power which it is supposed to possess in common with antitubercular serum, antiphthisin, and cinnamic acid. To this increase of leucocytes the antitoxic properties of the drug are attributed. Teigen advocates the use of electricity over the affected part in cases of phthisis in addition to the administration of nuclein by hypodermatic injection. Out of 4 undoubted cases of phthisis which he treated by this method 2 were very much improved. In Wilcox's cases the results were also very satisfactory.

Ch. P. Knapp, of Wyoming, Pa., $\frac{1}{\text{Apr. 23,'95}}$ found that in 3 cases of tonsillitis, 2 of malaria, 1 of scarlet fever, 1 of tubercular glands, and 3 of diphtheria the result was invariably satisfactory. J. M. Bleyer $\frac{1}{\text{Apr.,'95}}$; $\frac{59}{\text{Sept. 28}}$ did not find it of so much use, as of 9 early cases of true diphtheria 2 died, while all the 3 later cases proved fatal; 41 cases of follicular tonsillitis and false diphtheria, on the other hand, recovered rapidly.

To turn to another aspect of the question of nuclein it will be remembered that Horbaczewski some time ago brought forward the hypothesis that uric acid was formed chiefly by the breaking up of white blood-corpuscles, and from the nuclein in them. If this were the case, W. Weintraud $\frac{4}{\text{No. 19,'95}}$ argued that the amount of uric acid excreted should, in some degree at least, be dependent on the amount of nuclein ingested. He found by experiment that

this actually occurred, and concluded that food containing much nuclein should be forbidden where an excess of uric acid was the cause of disease.

P. F. Richter, $^{114}_{B.27,H.3,4}$ on the other hand, by estimating the uric acid excreted in diseases in which the number of leucocytes is increased or diminished, could only corroborate Horbaczewski's suggestion in part. In other cases also, in which he artificially produced a diminution of the leucocytes by the administration of spermin and quinine, the decrease in the amount of uric acid did not correspond.

A. J. Rosenberry, of Wausau, Wis., $^{80}_{Oct.15,'95}$ believes nuclein to be of value in the incipient stages of tuberculosis,—an opinion confirmed by F. W. Garber. $^{80}_{Jan.15,'95}$ Among those who have had good results from the clinical use of nuclein in various affections may be mentioned R. D. Johnson, of San Francisco $^{202}_{Sept.25,'95}$; Hollister, of Chicago $^{71}_{Sept.,'95}$; C. R. Mattson, of Philadelphia $^{1}_{Dec.15,'94}$; Chas. B. Reed, of Chicago, $^{1170}_{Dec.,'95}$ and W. H. Porter, of New York. $^{814}_{Aug.1,'95}$

Antifebrin.—See Acetanilid.

Antipyrin.—Langlois and Guibaud, $^{3}_{Mar.27,'95}$; $^{2}_{May 4,'95}$ by graduating doses given to animals whose spinal cord had been divided below the medulla oblongata, could distinguish several stages of antipyrin poisoning: (1) a cerebral stage, in which clonic epileptiform convulsions are limited to the head; (2) a cerebro-spinal stage, in which the head is still affected with clonic convulsions, while the trunk is attacked with one or more tonic spasms (opisthotonos); (3) a cerebral stage with spinal hyperirritability, in which the shocks caused by the clonic convulsions of the head set up violent reflex movements of the body comparable to the spasms of strychnine poisoning; (4) the reflexes of the head disappear at the same time as those of the trunk. Antipyrin has, then, an elective action in the higher centres, and this explains why its sedative action is more marked in head affections than in spinal. Similar conclusions are arrived at by E. Delisle. $^{2000}_{'95}$

Henocque, of Lille, $^{3}_{Aug.17,'95}$ points out that antipyrin has a powerful hæmostatic action which is local, its mechanism being by vaso-constriction and retraction of the tissues, with formation of a minute clot which is extremely retractile and aseptic. Antipyrin has also a favorable effect on cicatrization. The action of antipyretics on the blood when administered in toxic doses may be summed up as a transformation of oxyhæmoglobin into methæmoglobin. A phase of anæmia, or diminution of oxyhæmoglobin, precedes the accumulation of methæmoglobin. In this period there is at the same time production and elimination of methæmoglobin; if elimination be hindered or transformation be too rapid,

phenomena of cyanosis may be produced which must be distinguished from those of the period of intoxication.

X. Grépin [2000 July,'95] states that antipyrin is particularly indicated in epistaxis, in a $\frac{1}{2}$ or $\frac{1}{5}$ solution to the bleeding-point by means of a tampon. For ordinary use as an hæmostatic a $\frac{1}{10}$ solution is sufficient. It is also of value in dental, tonsillar, and uterine hæmorrhages. H. Huchard [35 Nov.9,'95] notes that as early as 1884 the hæmostatic properties of the drug had been noted, and that it was suggested by Arduin that the drug might be used for the same purposes as iron perchloride and ergot.

Roswell Park, of Buffalo, [9 Dec.15,22,'94] stated that he now keeps always on hand a standard, sterilized, 5-per-cent. solution, using it as a spray, a compress, or an injection. While it has not sufficient power to contract vessels that spurt, it almost instantly blanches and checks oozing from any surface from which blood is escaping just fast enough to be an annoyance. Moreover, it is practically unirritating.

W. Gilyard Scarth, of Leeds, [2 Dec.15,'96] believes antipyrin to be the best modern analgesic of the day, particularly valuable in neuralgias affecting the head. Given in the early stages of tonsillitis, it has seemed to abort the disease, and he has also had good results from its use as a gargle. Goenner [214 Jan.25,'95] tried it in an obstinate case of puerperal coccygodynia of two years' duration in which extirpation of the coccyx was seriously contemplated. Immediately after the first injection of a Pravaz syringeful the pain markedly decreased, while after a third it disappeared altogether and never recurred. Goenner warmly recommends this simple and harmless method in all cases of coccygodynia where no complications (luxation of the coccyx, periostitis, etc.) are present. Provided the puncture is deep, the injections cause a but quite trifling pain. E. Haffter [214 Jan.25,'95] states that, in a case of non-puerperal coccygodynia, he secured a rapid recovery from administering an enema made of 2 or 3 grammes (30 or 45 grains) of antipyrin to 10 cubic centimetres (2½ fluidrachms) of water.

Bergquist [678 v.14,No.3; 673 Apr.,'95] has used antipyrin subcutaneously with excellent results, employing a watery solution, injecting 1 gramme (15 minims), and rarely 2 grammes (31 minims), each time, following with massage at the point of injection. The pain, which is excruciating, lasts about half a minute. Of 130 cases of lumbago thus treated 122 were cured. In 8 out of 18 cases of ischias the results were very satisfactory, as they also were in all the cases of hemicrania, though here the pain of the injection was so intense that many of the patients did not return for a second treatment. The author found the method exceedingly successful

in a case of trigeminal neuralgia and in two cases of severe epistaxis. In some instances it was necessary to repeat the injection on four consecutive days. The syringe should be carefully cleaned after use, as the antipyrin will ruin the instrument if allowed to remain.

Comby [152 Sept.6,'95; 673 Nov.] expresses the opinion that antipyrin can be given to children as an antipyretic, antispasmodic, an analgesic, and to check diarrhœa. The drug is well borne by children of all ages and can be given in large doses. Only once in hundreds of cases has he seen a slight fugitive erythema caused by its administration. It has never in his experience caused disorder of the stomach or intestine, vomiting, or any ill effect on the kidney. In children suffering from febrile or spasmodic (chorea) diseases, antipyrin should not be given in fractional, but in large, doses to produce its full effect. According to the age of the patient 0.25, 0.50, or 1 gramme (4, 8, or 15 grains) should be given at a time; this dose may be repeated two, three, five, and even six times a day. The same doses may be continued for weeks without ill effect. In chorea, antipyrin, as a rule, diminishes the violence and disorderliness of the movements and shortens the duration of the disease. In whooping-cough antipyrin has failed in the author's hands. In painful affections and in infantile hyperæsthesiæ it is unreliable, but Comby admits that his experience on this point is not sufficient to base a final conclusion upon. In fevers antipyrin causes a notable reduction of temperature; it is one of the surest of antipyretics, and may be used without fear. When antipyrin in a sufficient dose does not lower the temperature it is a prognostic sign of ill omen. In the simple diarrhœa of nurslings antipyrin is neither so powerful nor so sure in its effects as in febrile or spasmodic affections.

T. McCall Anderson [2 Dec.1,'94; 673 Jan.,'95] has also found that antipyrin may be given with safety in large doses to children, if proper care be observed. In such large doses the results which it yields are often surprising, and in chorea it is the only medicine from which cures may be confidently expected. The author reports cases in his own practice illustrating its good effects and showing that it is not the dangerous drug that some authors have led us to suppose. The initial dose should not exceed 10 or 15 grains (0.65 or 1 gramme), and the cases should always be carefully watched, the amount of the drug being slowly and cautiously increased.

J. Gonzalez y Campo, [632 Feb.25,'95] reports a case in which toxic symptoms were caused by antipyrin, and suggests that the intoxication might have been caused by cumulative action due to imperfect elimination, or by the absence, in the dose directly responsible for

the toxic effects, of quinine which had been combined with the earlier doses and which may have counteracted the depressing action of the antipyrin.

E. Knight, of Gravesend, [2, May 18,'95] has seen urticaria produced rapidly by a single dose of 10 grains (0.65 gramme) of antipyrin. W. H. Payne, of Brockley, [2, May 18,'95] observed a similar instance. In a case seen by Ballin [211, Nov.17,'95; 1, Dec.14,'95] the eruption, which occurred twelve times in the same patient, consisted of flat, round, or oval patches of about the thickness of a five-franc piece and of a uniform red color, somewhat like that caused by a burn which had scorched the epidermis only. The affected part was quite œdematous, but the redness did not encroach upon the healthy parts. At the time of the first attack two or three of the patches were transformed into large blisters, the contents of which were citron-colored and transparent; this, however, was not observed during the other attacks. At first the redness was simply erythematous, but, when numerous successive eruptions had caused congestion of the same parts several times, a dark-red color persisted for quite a long time, and any pressure on the patches revealed the presence of an ecchymotic color under the epidermis. The patient recalled the fact that it had always appeared after the ingestion of antipyrin, even in small doses, which he had been in the habit of taking for the relief of headache.

Antipyrin mandelate is a new preparation of antipyrin, formed by adding to the latter mandelic acid. It was tried by Rehn [34, Nov.13,'94; 673, Jan.,'95] in some 60 cases of whooping-cough, with failure in only 2 cases. Dose for infants under 1 year, 0.05 to 0.10 gramme ($\frac{7}{8}$ to $1\frac{3}{4}$ grains); for children between 3 and 5 years, 0.25 to 0.50 gramme (4 to $7\frac{3}{4}$ grains).

Antitoxin.—See Serum-therapy.

Apolysin.—This drug, according to von Nencki and von Jaworski, of Warsaw, [1153, Oct.26,'95; 1, Nov.30,'95] is a yellowish-white crystalline powder of a sour taste, less acid than citric acid, and of a specific odor. It is soluble in cold water in the proportion of 1 in 25, and quite soluble in boiling water. It melts at a temperature of 161.3° F. (72° C.). It is easily dissolved both in alcohol and in cold glycerin. Concentrated sulphuric acid dissolves it without changing its color; concentrated nitric acid also dissolves it, and the heated solution becomes of a pale-orange color. In concentrated hydrochloric acid, in the proportion of 0.1 gramme ($1\frac{1}{2}$ grains) to 1 cubic centimetre (15 mimins) of the acid, heated and then diluted with ten times its volume of distilled water, with a few crystals of chromic acid, apolysin assumes a red color like that of Burgundy wine. Burned on a platinum plate, it leaves no

ash, which proves that it contains no mineral substance. The aqueous solution does not become cloudy with nitrate of silver, and sulphuretted hydrogen produces no thickening or any sediment in the acidulated solution. Ammonium sulphide also gives no sediment, which proves the absence of metals. The drug is not toxic, as proved by experiments on frogs and on rabbits. It possesses remarkable antipyretic and analgesic properties. The clinical observations of the authors have led them to the following conclusions: 1. Apolysin administered to fever patients lowers the temperature and at the same time prevents a series of co-existing symptoms, particularly pain. 2. Given to patients suffering with neuralgia, etc., it diminishes the violence of the pain, allays hyperæsthesia, shortens the duration of the attack, and often completely suppresses the symptoms. 3. Owing to its chemical properties, it acts promptly and regularly, and exercises no injurious effect on the organism. Its employment is contra-indicated during fasting and when there are excessive acid secretions in the stomach. 4. It is more soluble than other drugs in the same group, and consequently more promptly and more easily absorbed.

Hildebrandt $^{319}_{\text{Nov.9,'95}}$; $^{2}_{\text{Dec.14,'95}}$ shows by experiments that in weak HCl solutions apolysin is more easily split up than phenacetin (lactophenin occupying a middle place), whereas in alkaline solution phenacetin splits up more readily than apolysin. These experiments explain the harmlessness of apolysin when injected subcutaneously into the alkaline tissues. The readiness with which it splits up in acid solutions is a disadvantage when it has to be given by the mouth; in marked hyperacidity a large quantity of phenetidin may thus be disengaged.

[The editor has tried apolysin quite extensively for painful affections and has been unable to discover that it is better or worse than the other drug, phenacetin. The dose is large and bulky.]

Apomorphine.—Boyer and Guinard, of Lyons, $^{67}_{\text{Sept.30,'94}}$ believe that, in spite of what has been said against apomorphine, the profession is in error to deprive itself of a reliable emetic which, in many instances, may be of the greatest service and, when pure, incapable of causing serious symptoms.

W. A. Carmichael $^{129}_{\text{Oct.,'94}}$ is of the opinion that its value cannot be too highly esteemed as an emetic for children. The average time at which emesis occurs is much less than the period required by the yellow sulphate of mercury. It affords prompt relief in croup and capillary bronchitis without being attended by nausea and violent retching, which makes it a great boon to children; and it is readily applied hypodermatically to subjects who refuse relief, or who are under the influence of poisons taken with suicidal

intent or otherwise. As an expectorant, in doses ranging from $\frac{1}{80}$ to $\frac{1}{20}$ grain (0.0008 to 0.003 gramme) great relief may be obtained in cases of bronchitis, tracheitis, and catarrhal pneumonia. From the fact that it produces emesis by its action through the spinal nerve-centres, and not by irritation of the mucous membrane, it is a preferable remedy in inflammatory conditions of the stomach where emetics are indicated. In croup, where the case is urgent or where an expectorant effect is desired, $\frac{1}{100}$ or $\frac{1}{60}$ grain (0.00065 or 0.001 gramme) every fifteen minutes gives the happiest effect. As relief comes the time of dosing is extended to one or two hours, but the minimum dose continued. Where it is desirable to evacuate the stomach promptly, no remedy meets the case better than apomorphine. Cardiac depression following the use of the remedy should be promptly met by suitable tonics.

The value of apomorphine as an antispasmodic is attested by Edward Balm, of Hyderabad, $^{239}_{\text{July 1,'95}}$ who tried it in a unique and distressing case of hiccough in a man, 50 years old, who had suffered from the affection for about six months.

Stuyvesant F. Morris, of New York, $^{1}_{\text{Nov.10,'94}}$ gave it hypodermatically in a case of indigestion and violent gastralgia to cause emesis. Within two minutes the patient was entirely free from pain, fell asleep and slept for an hour, and was perfectly comfortable afterward. G. H. Cobb told the author that a case of his was identical in the immediate relief from pain followed by sleep. Morris suggests that the drug would be a valuable addition in the treatment of such cases. John E. West, of Jersey City, $^{1}_{\text{Nov.24,'94}}$ has found it very efficient in the catarrhal stages of whooping-cough.

Arecoline.—Lavagna $^{116}_{\text{July,'95}}$; $^{90}_{\text{Oct.,'95}}$ finds that the hydrobromate of arecoline, C_3H_8NOBrH, which is the active principle of the areca-nut, contracts the pupil when applied locally. Fröhner has already shown that this salt possesses marked sialagogue properties, surpassing in this respect even pilocarpine, and that it has, on the lower animals at least, like eserine, a laxative effect, increasing watery excretion. If a few drops of a 1-per-cent. solution of arecoline bromohydrate are put into the eye, there is first a feeling of warmth, with some spasm of the lid; tears flow, and there is evidence of irritation, lasting about a minute and followed by some hyperæmia of the conjunctiva and slight superficial injection of the cornea, which also disappears in a few minutes. In about 2 minutes strong clonic contractions of the iris are seen, with decreased size of the pupil. The myosis is well marked in 5 minutes and reaches its maximum in 10 minutes. Then a return toward the normal commences at the end of 30 minutes and in 70 minutes is complete. Subsequently a slight dilatation is noticed. When

the myosis reaches its maximum the pupil acts very weakly and slowly to light. Test-type brought near the eye seems larger and clearer than when seen with the other eye. This megalopsia occurs in 30 to 35 minutes after the drug has been applied to the eye. Even after several applications nothing like headache is produced. For a few minutes after the cessation of the accommodation phenomena a slight feeling of asthenopia may be felt, lasting only a short time, and due to the overstraining and cramp of the ciliary muscle. Lavagna points out that arecoline acts on the ciliary muscle before it influences the iris. The contraction of the ciliary muscle reaches its maximum in 1 to 6 minutes; then there is a return to normal; after this, a second, but weaker, condition, lasting about 15 minutes. A weak solution of arecoline bromohydrate, 1 in 10,000, though it markedly affects the ciliary muscle in 1 to 5 minutes, has little influence after 30 minutes. Even this strength slightly contracts the pupil for 10 to 20 minutes. The special feature in the action of arecoline is that it produces a very marked myosis which lasts only a short time.

Mouquet $^{296}_{\text{Nov.24}}$; $^{2}_{\text{Dec.21,'95}}$ states that the alkaloid has a powerful sialagogue and diaphoretic action, and markedly stimulates intestinal peristalsis in horses and other animals. It has the same properties as eserine and pilocarpine, but in a higher degree, and the indications for its use are the same. Given hypodermatically in doses of 0.02 to 0.025 gramme ($\frac{1}{3}$ to $\frac{2}{5}$ grain) it is found useful in animals, especially in the treatment of intestinal indigestion. Areca-nut, though largely employed in veterinary practice, is little used in human medicine. The editor of the *Nouveaux Remèdes* suggests that it might be worth trying on the human subject, but it would be prudent to begin with very small doses, such as 0.002 to 0.004 gramme ($\frac{1}{32}$ to $\frac{1}{16}$ grain). Areca-nut is said to be a powerful anthelmintic, the administration of which does not require to be preceded by a purge. It can be taken in milk or in soup without any unpleasant taste being perceived.

Argentamin.—This drug consists of a solution of 10 parts of phosphate of silver with an equal quantity of ethylene-diamine—$C_2H_4(NH_2)_2$—in 100 parts water. This does not throw down chloride of silver when mixed with a solution of common salt, nor does it precipitate albumin. Clinically it is said by Schäffer, of Breslau, $^{6}_{\text{July 6,'95}}$ to act more energetically than a common nitrate-of-silver solution of the same strength, both destroying microbes of a pathogenic character better and also penetrating more deeply into the tissues. He found it especially valuable in the form of injections for gonorrhœa, and Lang has used it with good results in a large number of cases of abscesses of glands and of the con-

nective tissue. Aschner [24 May 19,'95] praises it as a therapeutic agent superior to nitrate of silver in gonorrhœa. He uses solutions of ½ to 1 per cent. for injections into the anterior urethra and 1 to 4 per cent. for instillations into the posterior urethra.

Argonin.—Arthur Liebrecht [116 June,'95] states that this new silver salt is prepared from the sodium combination with casein mixed with silver nitrate and treated with alcohol, which throws down a fine, white powder, easily soluble in hot water, but with difficulty in cold.

Meyer [58 B.20,H.1,'95] believes this drug to possess antiseptic properties of no inconsiderable value. In watery solution, however, this is less marked than with silver nitrate, but albuminous solutions are of greater antiseptic value. Hypodermatic injections show that the symptoms of metallic poisoning appear more quickly with this remedy than with the nitrate; whether this is due to the more rapid absorption or to the peculiar combination of the metal is not at present determined. The remedy is claimed to possess the bactericidal, but not the caustic, properties of the nitrate.

Aristol.—Gevaert [1160 Feb.21,'95, 2 Mar.9] gives his experience of the use of aristol, which has been used with success by Eichhoff in cases of psoriasis, lupus, parasitic cutaneous affections, and tertiary syphilitic ulcerations. In lupus it is said to have given good results, and even to have a specific action on the tubercle bacillus. Ethereal solutions of 10 per cent. sterilize all cultures of microbes excepting the anthrax bacillus and the micrococcus tetragenus. Its insolubility renders its use limited to the same extent as iodoform, over which it has the advantage of producing no toxic effects. It can be used as an ointment of 10-per-cent. strength, made with olive-oil and vaselin. Gevaert has used it in lupus with good effect, combined with curetting, a severe case treated in this way healing in five weeks and remaining healed ten years afterward. He also recommends it in supporting bony cavities and in otorrhœa with large perforation of tympanic membrane. In cases of otorrhœa with small perforations it is dangerous from the liability to block up the perforation and cause accumulation of pus in the middle ear. It is also recommended in burns. Heuse [116 Feb.,'95; 5 July] recommends the use of this remedy in powder form for indolent corneal ulcerations with suppurating base. It is thickly applied with a brush and the eye kept closed for a little time. In two days the base of the ulcer becomes clean. In a 5-per-cent. ointment it is useful in ulcerative blepharitis, being preferable to the ointment of yellow precipitate on account of its causing less irritation. This ointment has given good gesults in obstinate recurring hordeola when rubbed into the edges of the lids at night.

Aristol is recommended by Haas [497 July,'94] as of value in burns, the pain being almost instantly relieved and healing being rapid.

Arsenic.—The influence of arsenic upon nutrition has been studied by Viratelle, [2097 '95] who states that in doses of 0.012 to 0.014 gramme ($\frac{1}{5}$ to $\frac{1}{4}$ grain) it increases the elimination of urea and phosphoric acid and diminishes the elimination of chloride of sodium. In large doses—that is, more than 0.014 gramme ($\frac{1}{4}$ grain)—it diminishes the excretion of urea and increases the excretion of phosphoric acid and chloride of sodium. In small doses the elimination of uric acid being augmented, nutrition is increased because the chloride of sodium, the stimulant *par excellence* of nutrition and the preservative of the red corpuscles, is retained in the organism in larger quantities than normal, thus stimulating nutrition, in spite of the loss of phosphoric acid. The contrary is the case when large doses are given, the unfavorable action being attributable first to the destructive effect of the drug on the red corpuscles, then to its action on the chloride of sodium, and finally to its action on the phosphoric acid.

The subcutaneous use of arsenic was resorted to by Kernig [114 B.23,H.3,4,'95] in thirty-five cases in which its internal use was inadmissible on account of the condition of the digestive tract (diarrhœa, etc.). Some of these were severe cases of anæmia, cancer, tuberculosis with gastro-intestinal catarrh, in which a large number of injections, 20 to 150, were used. In another group there was temporary disturbance of digestion and only 6 to 12 injections were used, until the internal administration could be begun. In many cases a favorable effect was at once produced, and, as other means had been generally tried without effect, Kernig felt warranted in attributing the result to the arsenic. At first he used 1 part of Fowler's solution with 2 of water, and a half of a Pravaz syringeful at a dose; later, after the example of Sacharjin, of Moscow, Fowler's solution undiluted. The solution must be clear. Seldom did the injection cause pain, and only once an abscess. His usual dose was 4 drops a day. No effect was produced on the intestine or the skin. The excellent results obtained from the subcutaneous administration of arsenic has induced von Ziemssen [326 Oct.25,'95; 15 Jan.,'96] to improve the form in which it is used. His success in a case of Hodgkin's disease and in two cases of lichen ruber suggested to him a much wider application. The injection of the official liquor containing potassium arseniate gives rise to much pain, inflammatory swelling, and even abscess and gangrene; so that the preparation is, as a rule, unsuited for the purpose. The reason of this lies in the mode of preparation and in the presence of a mold which rapidly settles in the solu-

tion. To overcome this von Ziemssen has adopted the following plan: 1 gramme (15½ minims) of arsenious acid is boiled in a test-tube with 5 cubic centimetres (1¼ fluidrachms) of normal soda solution until it is completely dissolved; the solution is then shaken in a flask, diluted to 100 grammes (3¼ fluidounces) and filtered. For use, it is placed in small tubes 2 cubic centimetres (31 minims) in size, which are corked with cotton-wool and sterilized in steam. Of such a 1-per-cent. solution of sodium arseniate 0.25 cubic centimetre (4 minims) is used at first once a day; after several days, twice daily; and gradually increased until a whole syringeful is given twice a day, a daily dose of about $\frac{3}{10}$ grain of sodium arseniate being given. These large doses, if administered with caution and if slowly increased, can be borne, and produce no disturbance of the appetite. In delicate, nervous patients there sometimes appeared, after large doses, a condition of increased nervous excitability,—a feeling of bodily weakness and mental exhaustion. These symptons soon vanished on intermitting the injections, and did not return.

Février $\frac{195}{\text{Dec.,'95}}$ has employed intra-venous injections of Pearson's solution of arseniate of sodium in sixteen cases of diathetic or cachectic affections. He used 1 cubic centimetre (15½ minims) for each injection,—equal to 0.00166 gramme ($\frac{1}{40}$ grain) of arseniate of sodium. In eighteen other cases he used a dose of 2 cubic centimetres (31 minims), repeating them every day for a week without any symptoms of intolerance appearing. He, therefore, believes that even larger doses may be given by this method, if desired.

Richardière $\frac{26}{\text{Oct.1,'95}}$ has observed a female patient, suffering from adenopathy, in whom injections of 42 drops of Fowler's solution and the internal administration of 500 drops of the solution produced a general pigmentation resembling the skin of a mulattress and almost black in the axillæ, neck, and fingers. After ceasing the use of the arsenic the pigmentation decreased and was followed by desquamation. This pigmentary deposit was the principal sign of arsenicism, which was manifested otherwise only by a slight diarrhœa and some paresis of the right leg. Rendu asked whether the generalized character of the pigmentation did not point to tuberculosis of the suprarenal capsules.

Ernest Heuss $\frac{214}{\text{No.10,'94}}$ records two cases of keratosis and melanosis following the internal use of arsenic.

Arsenite of Copper.—See Copper.

Asaprol.—This soluble derivative of β-naphthol, which was introduced into therapeutics by Dujardin-Beaumetz and Stackler, has been used successfully in fifty-eight cases of children's diseases

by Moncorvo, of Rio Janeiro, [67] Mar.15 to Apr.30,'95 ; [80] Aug.15 who presents the following conclusions: In healthy children asaprol, administered in varying doses, has no appreciable influence upon the temperature, the warmth, and the respiration. It does not produce any deleterious effect upon the alimentary tract when given in therapeutic doses. In children affected by acute infectious diseases asaprol lowers the temperature more or less rapidly and decreases the pulse-rate. During its administration it is frequently followed by a partial or general sweating, more or less abundant, while the amount of urine is augmented at the same time in nearly every case. The remedy has also an analgesic power, which it was possible to observe in some cases. Besides its antipyretic, antiseptic, and analgesic properties it possesses an hæmostatic power that is well marked and has been demonstrated both in experimentation and in clinical use, and which gives it a place beside antipyrin and thallin in this regard. Administered to children varying in age from 6 to 12 years, in a dose of from 4 to 45 grains (0.26 to 2.93 grammes) in the twenty-four hours, it never caused headache, vertigo, buzzing in the ears, nausea, or vomiting. Tolerance of the drug is, therefore, perfect. Its taste, slightly bitter, becomes immediately sweetish, and renders its use easy in young patients. Among the febrile diseases of infancy in which asaprol has been used are malaria, acute tuberculosis, and bronchopneumonia. In many cases of malarial fever in children from 15 days old to 12 years the drug seems to have an especial efficacy. The heat is reduced at times very rapidly, a perspiration breaks out over the skin, the diarrhœa is augmented, the liver and spleen are reduced in size, the digestive disorders are relieved, and at the same time the child becomes calmer and sleeps better. In other affections, where the results were almost negative, other similar drugs,—such as quinine, antipyrin, phenocoll,—studied comparatively in the same case, failed almost without exception. Topical applications were employed for cutaneous affections, for diseases of the ear, of the nose, of the mouth, of the throat, in vulvovaginitis, and for the antisepsis of the intestine. In these cases it has succeeded excellently as an antiseptic, hæmostatic, and cicatrizant. Morbid secretions were arrested and became inodorous, and the reparative processes seen in the surfaces of abscesses were, in general, very prompt. It was employed for this purpose in an aqueous solution of 1 to 4 per cent., according to the case, or mixed with vaselin or lanolin, or in a varnish after the method in which Berlioz employs carbolic acid. When employed in the treatment of pertussis, in the form of an aqueous solution of 1-per-cent. strength (it was applied on gauze over the periglotteal region),

it produced, without exception, the rapid disappearance of the disease,—a result which had been anticipated from experiments with bacteria developed on gelatin, whose further growth it prevented.

Lewin [41 Jan.28,'95] has successfully used it in cases of acute and subacute articular rheumatism, muscular pains, influenza, and certain forms of asthma and neuralgia. He employed doses of 4 to 6 grammes (1 to 1½ drachms) in powder or in aqueous solution.

Atropine.—See Belladonna.

Atropine Iodate.—See Iodic Acid.

Balsams.—G. Norsa [673 Aug.,'95] has used balsam of Peru and balsam of Tolu for the preparation of 1- to 3-per-cent. ointments, in ciliary blepharitis, superficial keratitis, opacities of the cornea, phlyctenular kerato-conjunctivitis, superficial corneal ulcerations, deep ulcers with iritis, hypopyon, and other affections. He finds that the remedies are well borne, have an antiphlogistic and antiseptic action, and that they serve as excellent cicatrizants, especially for the cornea.

W. Kollo [560 V.27,p.319,'95; 814 Sept.] has used balsam of Tolu to advantage as an excipient for pills of guaiacol, terpinol, or eucalyptol. He first triturates the substance prescribed with an equal quantity of powdered balsam of Tolu, then with a few drops of dilute alcohol,—4 drops of the latter to 1 gramme (15½ grains) of balsam of Tolu,—and then adds, under constant rubbing, a small quantity of magnesium carbonate until the mass is of extract consistence. He then finishes the pill-mass with the required amount of powdered licorice-root. If sodium arsenate, codeine, or narcotic extracts are prescribed with the above, he first triturates them with the alcohol, before adding to the other ingredients; while quinine, iodoform, and other substances he adds after the mass is of extract consistence. Pills made in this way, he claims, do not allow of the exudation of the substances.

Belladonna (*Atropine*).—The effect of atropine on the urinary apparatus is regarded by some authors as a diuretic one, while others claim that it decreases the quantity of urine. Thompson's experiments [182 '94] led him to conclude that the drug decreases the amount of urine by a direct effect on the kidneys, similar to that which it exerts on glands. Walti [273 B.36,H.5,6,'95] has made similar experiments, the results of which he gives in detail. He injected sulphate of atropine into the external jugular veins of rabbits first narcotized by chloral hydrate, and measured the urine flowing from a cannula in the bladder every five minutes, registering the blood-pressure at the same time. The dose of the atropine salt used (0.005 gramme—$\frac{1}{12}$ grain) was large, but this quantity is

well tolerated by rabbits; sometimes the dose was frequently repeated, and sometimes a still larger one was employed. He gives details of one experiment in which he gave the atropine after simply determining the normal flow. In all the others—twenty-four in number—he injected the atropine after he had raised the secretion of urine by the intra-venous injection of urea, caffeine sulphonic acid, or theobromine sodium salicylate (diuretin). The results of the experiments show that a diminution of the flow of urine usually follows the intra-venous injection of atropine, independently of the blood-pressure, which is often raised. A series of experiments made with different strengths and quantities of urea solutions seem to show that the kidneys are not injured even when large quantities of urea are injected. Albumin seems only occasionally to have been met with after the injection of urea, and then in mere traces, though small quantities of sugar were found when an increased urinary flow had been produced by large quantities of urea. Jacobi has recently noticed the presence of sugar when an increased secretion of urine is induced by caffeine sulphonic acid. Walti makes the interesting observation that atropine sulphate not only lessens the diuresis caused by urea, but causes, in some cases, the diminution, in others the disappearance, of the sugar due to the urea. In considering the practical bearing of Walti's experiments, D. J. Leech, of Manchester, $^{90}_{\text{Mar.,'96}}$ notes that the doses he used, though harmless in the case of rabbits, would be poisonous in man. He has not shown that atropine in all doses decreases urinary secretion, but only that this alkaloid, in doses such as would be poisonous to flesh-eaters, decreases the urinary flow and tends to prevent the appearance of sugar caused by the administration of diuretics.

In an experimental and clinical note on the atropine group Gordon Sharp $^{2}_{\text{Dec.21,'95}}$ states that daturine and duboisine might be called impure atropine. The varying effects obtained by different observers in the case of hyoscine and scopolamine may be accounted for on the supposition that neither is a definite base. Hyoscyamine might further be supposed to be identical with atropine. Atropine is the best-known alkaloid and might be called the fundamental, or representative, base; and our knowledge permits us to say at least that in hyoscine and scopolamine we have a certain proportion of atropine along with a varying proportion of a conversion or decomposition product of atropine, and which one might be called *a*-tropeine.

Instead, then, of multiplying names, we should call atropine what is usually atropine, and obtain hyoscine and scopolamine free from any admixture, and name the resulting products by

names corresponding to homatropine. For his own part, his experience of hyoscine, scopolamine, daturine, and duboisine has led him to think that they differ little from atropine.

R. A. Cripps [744 v.54,p.793; 90 Apr.,'95] advocates the use of a liquid extract of belladonna containing 0.75 per cent. total alkaloid, obtained from the root by repercolation with strong alcohol. From this preparation all the others can be made,—viz., emplastrum (0.5 per cent.), extractum alcoholicum (0.3 per cent.), linimentum (0.25 per cent.), tinctura (0.025 per cent.), unguentum (0.3 per cent.). Pulvis extracti belladonnæ compositus is the name given to a dry powdered extract containing 1 per cent. total alkaloid; it is intended to eventually replace the official green extract.

Comby [31 Jan.5,'95; 121 Apr.,'95] states that, while belladonna is an exceedingly useful drug in various diseased conditions, like every other active remedy it is powerful for evil no less than for good. Its virtues and limitation, therefore, should alike receive careful study. It should only be administered in accordance with the strict indications of the disease and the age of the patient. The physiological effects of belladonna are decided, and yet it is a fact which could only be learned by experience that, comparatively speaking, it is better borne by children than by adults.

W. F. Dearden, of Manchester, [2 June 22,'95] observed hyperpyrexia following the use of atropine in a month-old baby. The drug was used in a solution of 4 grains (0.25 gramme) to the ounce (30 grammes) and dropped twice daily into the eye for the cure of opacity of the cornea.

Bismuth.—W. Nicati [3 v.3,p.429; 814 Nov.1,'95] has successfully employed bismuth-loretinate in the after-treatment of operations on the eye, and in various ocular affections (phlyctenular, catarrhal, purulent, and granular ophthalmias; diphtheria, tuberculosis, epithelioma, and septic ulcers of the cornea), for "internal spraying" of the eye, in the manner calomel is sometimes applied, and for antiseptic dressing. The remedy causes neither irritation nor pain, and may therefore be used without being mixed with other powders, which are apt to interfere with its therapeutic action.

The patient opening his eye, powdered bismuth-loretinate is sifted by means of a dry brush over the whole ocular region, including the eyebrows; a strip of court-plaster about 5 centimetres (2 inches) in length by 1 centimetre (⅜ inch) in width, which has been dipped in an antiseptic solution, is then applied vertically over the eye, and over this strip an aseptic cotton-wool tampon is so arranged as to completely cover the orbital region.

This dressing is maintained by means of a bandage consisting of an oval piece of goat-skin, 4 or 5 centimetres (1¾ to 2

inches) wide and 9 to 10 centimetres (about 4 inches) long, to each end of which is attached a tape of sufficient length to allow of its being fastened both under the chin and in the neck. The tape is first passed horizontally around the head and tied over the temple on the healthy side, and passed from this point vertically upward over the head, a loop being formed and tied where it meets the horizontal line above the ear on the affected side, then continued until it meets the other end, which has been passed vertically downward from the first knot, under the chin, where a final knot is tied. Before being applied this band should be steeped in a mercury-cyanide solution. The dressing may be renewed daily without inconvenience; it is even imperative to renew it whenever it has become displaced.

In ciliary blepharitis Nicati has obtained excellent results from applications of an ointment prepared by mixing bismuth-loretinate with a sufficient quantity of olive-oil, rubbed on the eyelashes with a small wad of cotton-wool. This ointment softens the crusts and causes them to readily fall, thus favoring a cure of the palpebral affection.

Chaumier, of Tours, $^{35}_{\text{Sept.21,'95}}$ states that naphthol is the remedy most frequently employed to procure intestinal antisepsis, but the burning taste sometimes renders its use impossible, particularly in children, and it is customary to combine it with a bismuth salt. He finds it advantageous to use instead naphtholate of bismuth, or beta-naphthol-bismuth, which decomposes in the intestine into naphthol and bismuth. This drug has not a disagreeable taste and is readily taken by children. It contains 26.5 per cent. of beta-naphthol and 73.5 per cent. of bismuth. Hugo Engel, of Philadelphia, $^{1}_{\text{Mar.30,'95}}$ describes several cases in which he used this remedy with gratifying results. He believes it of value in all fermentative bowel complaints due to pathogenic bacteria, and says that the more there is evidence of auto-intoxication, the more apparent and the more rapid will be the effect of the beta-naphthol-bismuth. Daily doses of 75 grains (5 grammes) cause no toxic symptoms and are well borne by patients even when continued a long while. The author used 15-grain (1 gramme) doses in adults and 3-grain (0.2 gramme) doses in very young infants.

Jasenski, of St. Petersburg, $^{304}_{\text{Jan.19,'95}}$; $^{1}_{\text{Feb.16}}$ who has made a study of the phenolates of bismuth, gives the following results: 1. Phenol-bismuth contains 27.5 per cent. of bismuth and 22 per cent. of phenol. 2. Metacresol-bismuth contains 75 per cent. of bismuth and 17.5 per cent. of metacresol. 3. Beta-naphthol-bismuth contains 71.6 per cent. of bismuth and 23 per cent. of naphthol. 4.

Tribromphenol-bismuth contains 44.8 per cent. of bismuth and 51 per cent. of tribromphenol. The author has seen these substances become decomposed in the stomach under the influence of the gastric juice, on the one hand, into phenol, cresol, and naphthol, and, on the other hand, into bismuth. One part of the compound, not having time to become separated in the stomach, passes into the small intestine, where it finds conditions which favor its complete decomposition by the acid of the intestinal contents. The phenol and cresol separated from the bismuth are entirely absorbed in the digestive canal, and are eliminated by the urine in a condition of a conjugate sulpho-acid or combined with glycuronic acid. With regard to the naphthol, one part passes into the urine and the other part into the digestive canal and is expelled with the fæces. The quantity of hydrochloric acid contained in the gastric juice being greater in dogs than in man, in them a small part of the bismuth becomes transformed into a soluble compound (bismuth chloride), and is absorbed and then eliminated by the urine, while the larger part passes into the fæcal matter in a condition of bismuth sulphide. In man's urine no bismuth is found, but it is met with in the fæces in the proportion of 96.4 per cent. Notwithstanding the toxic properties of the phenols, not one of these preparations, when administered to a human being to the extent of 75 grains (5 grammes) or to a dog to the extent of 150 grains (10 grammes) a day for a period of three weeks, had any noxious effects,—probably, Jasenski states, because the separation of the phenol from the bismuth took place slowly. The employment of these compounds in the treatment of acute and chronic diseases of the digestive canal or of the various infectious diseases gives good results, owing to the association of a general carbolized antiseptic and the bismuth as a local antiseptic.

R. Brindisi, of Boston, [80 Mar.15,'95] has found that, of the many powders which have been proposed as a substitute for iodoform in its external applications, the only one which deserves, in many cases, to take its place is salicylate of bismuth. He has experimented on its action for about two years in different kinds of ulcerations of the skin, and has come to the following conclusions: 1. In the first period of the chancroid and in tubercular ulcerations of the skin, if the salicylate of bismuth is dusted once a day on the diseased area, after a few applications the granulations become florid and the lesions show a marked tendency toward cicatrization. As soon as the granulations appear healthy the salicylate of bismuth is better applied mixed with subnitrate or subgallate of bismuth (1 to 2), which mixture is generally sufficient to cause the complete cicatrization of the ulcer. Of course, the application of the

powder must be preceded by the thorough cleansing of the lesion with an antiseptic solution. 2. The salicylate of bismuth is, in the aforementioned cases, preferable to iodoform, because, while it gives the same and sometimes better results, it is exempt from the unpleasant odor of the other and never causes that troublesome eczema which many times is a serious obstacle to the use of iodoform.

F. Thabuis [996 Apr.10,'95] advises against the use of bismuth salicylate internally as being too unstable in composition and effects. It acts through the free salicylic acid which it contains, and the accumulation of this substance in the organism may give rise to grave disorders.

O. Wiemer [116 H.1,'95] has found that subgallate of bismuth accelerates the healing of wounds, unites the wounded surfaces, and is entirely free from any symptoms of irritation on the part of the tissues, the result being the "dry treatment" of wounds. The remedy is used in substance as dusting-powder and as a 10-percent. gauze, the latter possessing the advantage that it can be sterilized in steam at 212° F. (100° C.) without destroying its antiseptic properties. Before the operation all dressings, compresses, and material are sterilized in a Lautenschläger apparatus. During the operation antiseptics are excluded, the blood is removed by pledgets of the gauze, and the hæmorrhage carefully checked. The powder is then thoroughly rubbed in and the gauze applied. The drug seems to be absolutely non-poisonous, 150 grains (10 grammes) administered by the stomach-tube to rabbits and dogs being absolutely harmless. On the other hand, an instance is reported where serious symptoms followed its use in the peritoneal cavity after cœliotomy, when absorption is presumably energetic; the symptoms were analogous to those caused by bismuth subnitrate used as an antiseptic.

Airol is the name given by Lüdy [903 B.33,'95] to subgallate of bismuth, or dermatol, in which iodine has been substituted for an hydroxyl group. It is a green powder, without taste or smell, not affected by light, and not soluble in alcohol, glycerin, or water. When applied to a wound it rapidly gives up a part of its iodine and turns yellowish red. C. H. Haegler [214 July 1,'95] has found, from experiments on guinea-pigs and rabbits, that it is non-toxic. He used it in some eight hundred hospital cases as a surgical dressing, finding it equal to iodoform. J. Fahm [214 Apr.15,'95] employed it in burns in varicose ulcers, and knows of no topical agent as rapid in effect and as unirritating. He gave it in 0.20-gramme (3 grains) doses, twice daily, in a case of tuberculous ulceration of the intestine, and observed a diminution of the pain and diarrhœa. Veiel [57 Oct.20,'95]

recommends airol in leg-ulcers, especially when associated with eczema; in sycosis of upper lip, syphilitic sores and ulcers, small wounds, and mercurial stomatitis.

P. Carles [211 Sept.30,'94; 1 Oct.20,'94] warns pharmacists against the partiality that they accord to light bismuth subnitrate, and reminds them that, in order that the heavy bismuth subnitrate—that is to say, the normal—may exert all its efficiency, it is necessary that it should be administered only in a state of intimate division. The light subnitrate contains a certain quantity of carbonate, which sufficiently explains the relative lightness of the product and its poverty in nitric acid. When the therapeutic action of bismuth subnitrate is closely studied, it is evidently not a matter of indifference that the proportion of nitric acid is small.

According to Gayon, Dupetit, and Dubourg, bismuth subnitrate is a powerful bactericide. It is to this primordial action that it owes those virtues which have been for a long time universally appreciated in gastro-intestinal diseases that are the result of morbid fermentation. The good effects, according to Carles, which have been obtained from its employment in urethritis come from no other cause. It also owes its efficaciousness to the independent action of its oxide and its acid. The oxide has the property of saturating the acid supersecretions of the stomach; the acid has the same qualities and undergoes slow chemical changes in the intestine. From the time it comes in contact with these digestive regions the subnitrate always meets with hydrosulphurous emanations, which, although transforming it into the black sulphide, set a corresponding proportion of nitric acid free. Now, because of its own acidity, the nitric acid acts directly on the intestinal mucous membrane as an astringent; but to this topical action its special antiseptic virtues may be added, for, according to Duclaux, the presence of a trace of nitric acid in an organic solution arrests the evolution of a great number of microbes and hastens their destruction. Meanwhile its bactericidal action does not cease here; from the time that it comes in contact in its intestinal course with fresh hydrosulphurous vapors it is reduced and transformed into nitrous vapors, the special antiseptic action of which, in regard to the bacteria which secrete putrid gases, has been shown by Girard and Pabst. It will be difficult, adds Carles, to deny their presence in the various flatulent forms of gastro-enteritis. That all these conditions may be realized, the oxide of bismuth must bring with it the entire portion of acid with which chemistry has vested it in order to make the insoluble combination known as the subnitrate; again, it is necessary that this combination should be in a state of exceedingly fine division.

According to Devoto, [1126 Nov.15,'95] bismuth subnitrate, in doses of 6 to 8 grammes (1½ to 2 drachms), lowers the ratio of sulphuric-acid compounds in patients living principally on albuminoid diet. At the same time indican diminishes or entirely disappears from the urine. This shows that putrid fermentation going on in the intestine diminishes, in spite of the fact that, under the influence of bismuth, intestinal peristalsis has been suppressed.

Mathieu [827 Dec.11,'95; 1 Jan.4,'96] related the case of a patient who suffered from an excess of hydrochloric acid in the secretions of the stomach. He had prescribed bismuth subnitrate in doses of 225 grains (15 grammes) in the morning and 75 grains (5 grammes) at night. Besides this, the patient had taken 0.0005 gramme ($\frac{1}{130}$ grain) of atropine sulphate. This treatment had been continued during the physician's absence for about sixty days. In that time the patient had taken altogether 24,000 grains (1550 grammes) of bismuth subnitrate. This enormous quantity had not produced any alteration in the general condition. The patient had had for a long time stomatitis and streaks on the gums, which did not seem to have been aggravated by the bismuth. There had been no slate-colored patches on the inner surface of the cheeks, but there had been a pigmentation resembling that of pregnancy; this, however, had disappeared after the treatment had been stopped. Constipation had also been observed, but it had been only incidental, and the digestive functions had not been perceptibly changed. In the discussion Hayem remarked that this observation confirmed what he had previously stated on the subject of the internal use of bismuth subnitrate. In large doses, he said, it was a good medicament in the painful forms of dyspepsia, decidedly preferable to sodium bicarbonate.

At a meeting of the Société Médicale des Hôpitaux Gaucher [14 Dec.1,'95; 697 Feb.,'96] showed four cases of poisoning by bismuth in patients who had applied the subnitrate in the form of a dusting-powder to the skin. The preparation was tested chemically and was found not to contain any other metallic impurity. The first symptom that manifested itself was a blue line on the gums, closely resembling the familiar blue line of chronic lead poisoning. On other portions of the buccal mucous membrane the spots were more of a slate color. If the application were continued, a true stomatitis appeared. In some of the cases the powder had been applied to an abraded surface.

In the discussion that followed Hayem remarked that he had been in the habit of administering as much as 15- to 20-gramme (3¾ to 5 drachms) doses of the drug and had never observed any evil result; so that he was driven to the conclusion that the salt,

when applied to the skin, must undergo a different form of decomposition from that which it suffers in the stomach.

Blueberries.—See Myrtillus.

Bone-marrow. See Animal Extracts.

Boral. See Aluminium.

Bromethylformin.—Laquer [75 Jan.1,'95; 2 Feb.9] alludes to the introduction by Bardet of bromethylformin as a substitute for the inorganic bromides, the object of the substitution being to avoid the skin eruption, fœtor, and other unpleasant effects so often produced by the bromine salts commonly used. He further mentions that Féré's trial of the drug in a few cases of epilepsy indicates that it may be employed in much larger doses than ordinary bromides without causing furunculosis. His own observations confirm those of Féré. One of his epileptic patients took nearly 8 grammes (2 drachms) daily for six weeks without showing any acne, loss of appetite, or other ill effect; the fits were checked to the same extent as when 3 or 4 grammes ($\frac{3}{4}$ to 1 drachm) of potassium bromide were given daily. Bromethylformin (also called bromalin) is represented by the formula $(CH_2)_6N_4C_2H_5Br$; its percentage of contents of Br is 32.13, that of KBr being 67.2. The author finds that 2 grammes (31 grains) of bromalin are equal to 1 gramme ($15\frac{1}{2}$ grains) of KBr in reducing the number of fits.

Bromide of Ethyl.—See Ethyl.

Bromides.—Féré [327 Dec.12,'95] calls attention to the necessity of looking after the skin while giving a course of the bromides. Antiseptic baths should be given, preceding by ordinary soap-baths, so as to remove any germs present in the skin-glands. Corrosive sublimate is the best antiseptic if eruption or ulceration has not already occurred, in which case the choice becomes more delicate. He expresses a preference for permanganate of lime, 0.02 to 0.03 gramme ($\frac{1}{3}$ to $\frac{1}{2}$ grain) per litre (quart) of water. The slight deposit which it leaves can be removed by a lotion of tepid water or a solution of sodium bisulphite.

Cadmium.—Langlois and Athanasio [14 May 22,'95] have studied the effect of cadmium salts on cold-blooded animals. Injection into the frog of 0.70 gramme ($10\frac{3}{4}$ grains) of sulphate of cadmium per kilogramme ($2\frac{1}{5}$ pounds) of weight of the animal, caused a state of stupor in which the excitability of the nerves remained intact, leading them to conclude that cadmium acts upon the ganglionic system of the heart. In a later paper [927 Nov.9,'95] they state that the blood-cells, or at least the hæmoglobin, of a dog poisoned with cadmium undergoes partial transformation, the microscope showing morphological changes, with an increase of serum-globulin.

According to Paderi, [1147 Jan.,'95; 112 June,'95] cadmium occupies in Mendelejeff's periodical system a place that corresponds to that held by zinc and mercury. The chemical analogy existing between the metals extends also to their therapeutic action, although this is not always the case. Toxic doses of cadmium produce about the same effects on frogs, birds, dogs, and rabbits,—progressive weakness, a tendency to somnolence, slowing of pulse and respiration, and death without convulsions. Chronic poisoning leads to rapid emaciation, complete paralysis, and death with the heart arrested in diastole. The drug exerts but a slight action, if any, on the peripheral nervous system. As regards the centric nervous system, it first affects the cortex, but before this has been completely paralyzed, the functions of the medulla are interfered with, and the animal dies from arrest of respiration. The heart is affected centrically and also by the direct action of the drug on the cardiac muscle. The muscles of an animal poisoned by the metal retain their excitability for a long time. In small doses cadmium acts on the digestive tract as an astringent, but in large doses it excites peristalsis and causes diarrhœa. In all the poisoned animals congestion or inflammation of the kidneys was found after death. Injected hypodermatically it produced intestinal ulceration. Its antiseptic action is greater than that of zinc and less than that of mercury.

Caffeine.—As C. R. Marshall [90 Nov.,'95] states, our knowledge of the changes which caffeine and theobromine undergo in the organism was, until recently, in a most unsatisfactory condition. Although numerous researches had been made upon these bodies, no unanimous conclusion had been arrived at. Experimenters were not even agreed as to whether the bodies in question were excreted in the urine as such or not. Lehmann, Neubauer, Hammersten, and Dragendorff failed to find caffeine in the urine after the administration of coffee or even the alkaloid itself, while Strauch, Schutzkwer, Schneider, and others found it almost constantly. Maly and Andreasch obtained as much as 66 per cent. of the alkaloid from the urine, and consequently they believed it to pass through the organism unchanged. Schneider found that after therapeutic doses caffeine could not be detected in the urine of cats or men, but that after comparatively large doses it was readily obtained. Contrary to the opinion of Maly and Andreasch, he thought that the greater part of the drug was destroyed in the body. The discrepancy in the results of these various investigators may have been due to differences in the dose administered, the animal used, or the methods of estimation of the alkaloid employed; the last, in some instances, was certainly unsatisfactory.

A number of writers have experimented on cats, dogs, rabbits, and men, and administered these compounds by the mouth, but chiefly subcutaneously. Bondzynski and Gottlieb $^{273}_{B.36,p.45}$ confined their attention mainly to the amount of methylxanthine excreted; Rost $^{273}_{B.36,H.1,2,'95}$ to the administered alkaloid; while Albanese $^{273}_{B.36,H.1,2,'95}$ estimated both bodies. Markedly different results were obtained with the different animals. Thus in rabbits caffeine produced a powerful diuretic effect, while dogs and men were but slightly affected. Similarly, the amount of caffeine and monomethylxanthine excreted varied, being well marked in rabbits and but slight in dogs. Both Albanese and Rost draw attention to this relation between the diuresis and the amount of caffeine excreted. Albanese thought it was due to the action of caffeine alone on the renal epithelium, but later he found that monomethylxanthine also produced diuresis (in rabbits). The greatest amount of the alkaloid was excreted on the first day, but Rost finds that excretion seems to go on for some days longer.

Theobromine only differs from caffeine in being found in greater amount, both as the alkaloid itself and as monomethylxanthine [20 per cent. compared with 10 per cent. from caffeine (Albanese)].

The effect of animal metabolism upon these compounds, therefore, seems to be in the direction of a demethylization. Both caffeine (trimethylxanthine) and theobromine (dimethylxanthine) are excreted to a certain extent as monomethylxanthine, and more of the latter is found after the administration of theobromine than caffeine. Bondzynski and Gottlieb appear to regard the monomethyl compound as a final product, and they draw attention to Hofmeister's observations on the excretion of salts of tellurium and selenium as methylated compounds, and to His's proof of the excretion of pyridine as methylpyridine. Albanese, on the other hand, thinks that monomethylxanthine is only an intermediate product, and is probably a forerunner of ammonia and urea. In no case did the experimenters account for all or even the majority of the alkaloid administered.

Gaetano Vinci, of Messina, $^{1147}_{Aug.,'95}$; $^{112}_{Jan.,'96}$ gives the results of a long series of experiments on the action of caffeine on blood-pressure. In all cases there was a rise of blood-pressure, whether the drug was administered by the mouth, intra-venously, or hypodermatically, with a consequent fall of pressure only in rabbits. In dogs and rabbits subjected to repeated blood-lettings there was a constant rise to the normal, and often far above. In dogs suffering from inanition there was a constant elevation of blood-pressure proportionate to the weakness of the animal, except in cases where

the lowering of vital forces had gone so far as to affect the heart-muscle. The action of the drug was always manifested promptly and remaining; with successive doses there was always a new increase of pressure, but less marked. As a result of his researches, the author strongly commends the use of caffeine in disorders of the heart in cases of disturbed compensation.

Pickering $\frac{178}{\text{v.17,No.6; July 20,'95}}$ $\frac{2}{}$ made some experiments with chlorocaffeine, studying the connection between the chemical constitution and the physiological action of the stimulus employed. Xanthine increases the force and the frequency of the embryo chick's heart and the frequency of the frog's heart, but does not produce any tonic contraction. Theobromine, which is dimethylxanthine, has a greater influence in increasing the force and frequency of the chick's heart and in large doses produces slight tonic contraction. Caffeine, which is trimethylxanthine, produces marked tonic contraction. In chlorocaffeine an atom of chlorine is introduced into the caffeine molecule without displacement of the methyl radicals. The methyl groups would tend to induce tonic contraction of the heart-muscle, the chlorine an atonic condition. The introduction of the chlorine atom was found to modify considerably the physiological action of caffeine. Chlorocaffeine produces far less tonic contraction of the heart than caffeine; so that it presents, apparently, an example of "physiological antagonism" going on in the interaction of the parts of one kind of molecule and living contractile tissue,—in these experiments the myoplasm of the embryonic heart. A solution of caffeine in chlorine-water acts differently, the free chlorine being very toxic to the heart. The possibility of the chlorocaffeine being decomposed in the living tissue into caffeine and chlorine was considered, but no evidence of such an occurrence could be discovered. Chlorocaffeine is a powerful diuretic and also apparently a cerebral stimulant. Experiments were made also with cyanocaffeine, but this was found to act more like a cyanogen derivative than a caffeine derivative, the cyanogen molecule overpowering the three methyl groups.

Skerritt $\frac{15}{\text{Apr.,'95}}$ calls attention to the value of caffeine in bronchial asthma and in bronchitis associated with spasm of the bronchial tubes. When a paroxysm of asthma is present he prescribes 5 grains (0.32 gramme) of the citrate of caffeine every four hours until relief follows. When the attacks come on regularly in the early morning, a dose of 5 or 10 grains (0.32 or 0.65 gramme) at bed-time often serves to avert them. No ill effects have followed the treatment, even when continued for years. The drug sometimes causes slight wakefulness, but, as a rule, patients go to sleep without difficulty after the nightly dose of 5 or 10 grains.

N. Ferrara, of Naples, [814 Apr.15,'95] states that caffeine, given by the mouth, does not, even in large doses, show its best effects, because it is eliminated with great rapidity. The hypodermatic method is the best, and is painless, producing no cutaneous reaction. Tanret has clearly shown that the alkaloidal properties of caffeine are very weak, and proposed to administer the drug in a staple combination with salicylate or benzoate of soda. A convenient form for use is the following:—

℞ Caffeine, ... 2 grammes (½ drachm).
Benzoate of sodium, ... 2 grammes (½ drachm).
Distilled water, ... 8 grammes (2 drachms).

Each gramme of this solution contains 0.25 gramme (4 grains) of caffeine.

James Ferguson, of Perth, [2 Apr.29,'95] observed a case of tonic spasm following a medicinal dose of citrate of caffeine, repeated three hours later for severe headache, which became more violent than before. There was jerking of the hands and forearms, the fingers began to be rigidly clenched, and shortly after the head was seen to be drawn to one side, with the jaws tightly fixed together. At this stage the author found the fingers of both hands as described and the muscles of the face tightly drawn, but with some imperfect articulation by this time possible. Friction of the affected parts did some good, and a dose of 30 grains (2 grammes) of chloral was ultimately followed by recovery of control over the muscles. There had been no loss of consciousness throughout. The patient's sensation had been chiefly one of great faintness and nausea. The author suggests that the use of the drug be watched, since it has now become a popular remedy for headache.

Calcium.—The undoubted usefulness and the long controversy which has existed regarding the best mode of administering the phosphates have led Vaudin [67 May 15,'95; 80 Sept.16] to study minutely the form in which the lime-salts, especially the phosphates, are found in physiological solution in milk. His studies lead him to the following conclusions: (1) the phosphates of lime exist in milk as the tribasic salt, and the various influences which tend to precipitate them from their solutions throw them down in the form of phosphates with three equivalents of lime; (2) the phosphates of lime are maintained in solution in milk by the alkalines, citrates, and the lactose which it contains; (3) phosphate of lime can be produced in the laboratory that will have characteristics of the lime-salts found physiologically in milk; (4) solutions of the phosphates obtained by the use of mineral or organic acids contain the phosphates with but one equivalent of lime-salt, and precipi-

tate the phosphates in the bicalcic form, which is not the physiological one.

D. M. Moir, of the Indian Medical Service, [15 Nov.,'94] is convinced that chloride of calcium, in full doses, reduces temperature, and keeps it reduced, in certain inflammatory affections of the lungs. He relates two cases of pneumonia in which this effect was marked. An editorial in the *Philadelphia Polyclinic* states that in using calcium chloride as an hæmostatic one important point must not be forgotten,—namely, that, while the first effect of the drug is to increase coagulability, its long-continued use diminishes coagulability. The best plan, therefore, is to give a large quantity in the beginning,—say, from 10 to 30 grains (0.65 to 2 grammes) at a time,—the smaller dose repeated as often as every two hours, the larger dose given not oftener than three times daily, and then to gradually diminish the dose, intermitting at the end of two or three days.

Bordas [14 June 26,'95] states that calcium permanganate is a deliquescent salt having a most energetic action upon micro-organisms. Its effect was tried by him upon the coli bacillus, the bacillus of Eberth, of Koch, the septic vibrio, and the bacillus of anthrax. It is active in the dose of 0.01 gramme to the litre (quart),—about $\frac{1}{6}$ grain to $1\frac{3}{4}$ pints,—*i. e.*, in quantities one hundred times less than the bichloride. It has, furthermore, the advantage of being neither toxic nor corrosive. It is also more efficient than potassium permanganate, and does not leave any potassium, which is caustic, in the products of its decomposition. It may easily be preserved in standard aqueous solutions.

Tarozzi [953 v.34,p.121,'95; 814 May 15] has made a report on calcium sulphophenate, which is prepared by the action of sulphophenic (sulphocarbolic) acid on calcium carbonate. It is a white, almost odorless, stable, astringent powder, freely soluble in water and in alcohol. It possesses strong antiseptic, disinfectant, and astringent properties, which would render it of especial value in obstinate cholera morbus and wherever cicatrization of an internal or external lesion is desired. Calcium sulphophenate is given internally in 1-per-cent. aqueous solution, sweetened; the children's dose is 0.3 gramme ($4\frac{1}{2}$ grains).

Calomel.—See Mercury.

Camphor.—Schilling [34 Sept.17,'95; 2 Oct.19,'95] discusses the treatment of collapse by ether, musk, and camphor administered subcutaneously. Ether has a markedly evanescent effect. The tincture of musk, although a valuable cardiac stimulant, is not constant in its composition. Hence camphor is very generally employed. The author maintains, however, that the doses of camphor recommended

in text-books are not large enough. He says that as much as 1 gramme (15½ grains) may be employed. The effect of 0.5 gramme (7¾ grains) on a thready and almost imperceptible pulse is well marked, but that of 1 gramme (15½ grains) is often astonishing. The solution of camphor used is: camphor, 1; olive-oil, 10. He gives 1 ordinary syringeful to children, seldom 3, and mostly 5 to 10 to adults. These large doses of camphor are well borne. No ill effects on the skin, brain, or lungs have occurred. Fear of fat-embolism should scarcely exist, since hardly a case of the kind has been put on record. Probably large doses of camphor act differently in animals than in man. Even in cases with cerebral symptoms the author has used these large doses without any increase in those symptoms. Camphor leaves the body within a couple of hours and has no cumulative action.

Cannabis Indica.—R. Cowan Lees, of Glasgow, $^{2}_{\text{Feb.9,'95}}$; $^{673}_{\text{Mar.,'95}}$ has had excellent results from the use of a strong aqueous extract of the flowering tops of the female plant, of the usual strength of liquid extracts. It possesses the anodyne and soporific action generally ascribed to the resinous extract, although in a modified degree. It has the characteristic odor of the hemp, a beautiful deep-amber color, is miscible with water, and hence there is no difficulty in combining it with other liquids. Liquor cannabis Indicæ, in his experience, gives all the beneficial effects without the drawbacks of the tincture, avoiding those extreme exhilarating conditions bordering on intoxication, which are sometimes met with even when using a medium dose of the latter. It does not seem to interfere with the secretion of mucus from the bronchial glands,—a circumstance which renders it superior to opium in cases suitable for its use, while in pulmonary affections generally it acts most favorably as a soporific and anodyne. The author speaks very highly of its effect in phthisis, where it relieves the cough and stimulates and exhilarates the patient. It is also valuable in indigestion and constipation. The dose commonly used by him was ½ fluidrachm (2 grammes) for an adult, though in many cases it may be increased to 1 drachm (4 grammes). The dose for children is proportionate, though Lees observed that young patients were somewhat less susceptible to it than grown persons.

Carbolic Acid.—Faivre $^{3}_{\text{Aug.17,'95}}$ states that, though carbolic acid presents certain inconveniences, yet he has had good results, especially in erysipelas, from the subcutaneous injection of a solution containing equal parts of glycerin and carbolic acid. He employs a dose of 0.05 gramme (⅞ grain), and has never found it dangerous, but satisfactory as an analgesic and antithermic.

Vomiting after ether can often be stopped, according to

Keen, $^{144}_{\text{Nov.,'94}}$ by giving ¼ drop of carbolic acid every hour for a few hours.

Herlyn, of Emden, $^{69}_{\text{No.41,'95}}$; $^{5}_{\text{Jan.,'96}}$ reports a case in which a 3-per-cent. solution of carbolic acid was used as a rectal by mistake for a vaginal injection. Fainting followed, the respiration was superficial and slow, the pulse 30 to 35 per minute, there were isolated clonic spasms, and the pupils were without reaction. About 7 ounces (217 grammes) of the solution, containing 90 grains (6 grammes) of carbolic acid had been used. After repeated injections of ether the pulse became stronger and the patient recovered consciousness; the night was restless, there was a profuse mucosanguinolent diarrhœa and the stools were of the odor of carbolic acid; the urine was not characteristic. Recovery followed in five or six days.

W. Sekowski $^{520}_{\text{No.42,'94}}$ observed a severe case of acute poisoning from the use of vaginal injections of a carbolic-acid solution, the patient, who was very anæmic, being restored with difficulty in seven hours. For five days the urine contained traces of carbolic acid. A fatal case of poisoning from the drug is reported by Bozdanik $^{211}_{\text{Jan.12,'96}}$ in a newborn child whose circumcision wound had been dressed with a 3-per-cent. carbolic-acid solution. Lucas and Lane $^{6}_{\text{No.3744,'95}}$ report cases of coma from the use of carbolic-acid dressings.

Carbonic Acid.—A. Rose $^{1}_{\text{Mar.9,'95}}$ advocates strongly the use of carbonic acid in dysentery, the vomiting of pregnancy, whooping-cough, prostatitis, and impotence. The apparatus he employs consists of a bottle holding a pint or more, with a wide mouth and a rubber stopper, the latter perforated so as to admit a glass tube, which at the external end is connected with a rubber tube, at the farther extremity of which is a nozzle to be introduced into the rectum. The bottle is filled one-third full of water, the glass tube reaching to within one or two inches of the level of the water. Into the water he first puts about 6 drachms (24 grammes) of bicarbonate of sodium, and then, when it is ready, adds ½ ounce (16 grammes) of large crystals of tartaric acid (if the pulverized is used the development of gas goes on too rapidly). The bottle is then closed quickly; the carbonic acid rises through the tube and inflates the rectum. Any position—as Sims's—may be used. As soon as meteorism or a considerable sensation of tension is felt in the rectum, the nozzle may be withdrawn or the patient may, while the nozzle remains *in situ*, free himself from as much gas as he cannot well retain in the rectum. The inflation is then repeated as required, until all the gas in the bottle is exhausted. He reports very satisfactory results in all the diseases mentioned.

Castor-Oil.—Ouchinsky [292 Jan.,'95] describes ricine as a toxic substance contained in the castor-bean; it is found in the oil prepared from them when the process has been imperfect. Stilmark places this substance among the albuminous ferments of the order of phytalbumoses; the author concurs in this opinion. On cold-blooded animals ricine has but little action; warm-blooded animals are very susceptible to it, a very small dose proving fatal. It acts more rapidly when exhibited by the stomach than when injected subcutaneously. The temperature rises to 104° F. (40° C.), to fall again below normal. The heart continues to beat after the cessation of respiration. At the autopsy the intestinal mucous membrane is hyperæmic, dotted with punctiform hæmorrhages; the liver, kidneys, and spleen are gorged with blood; the intima of the blood-vessels show many spots of hyaline degeneration.

Klein, of Khaïfa, Syria, [14 July 7,'95] describes a method of removing the disagreeable taste of castor-oil in use among the Arabs. From 15 to 20 grammes (4 to 5 drachms) of the oil are poured into a glass of milk and the mixture heated, stirring with a spoon. A perfect emulsion is thus obtained, which is flavored with syrup of orange-flower. A smaller dose than usual is required, the quantity mentioned being sufficient for an adult.

Another emulsion recommended is the following [15 May,'95]:—

℞ Olei ricini,	1	ounce	(31.00 grammes).
Gum acaciæ,	½	ounce	(16.00 grammes).
Elixir saccharin.,	20	minims	(1.30 grammes).
Olei amygdalæ,	2	minims	(0.13 gramme).
Olei carui,	2	minims	(0.13 gramme).
Aq. destill., q. s ad	2	fluidounces	(62.00 grammes).

Mix. Dissolve gum in water, add oil gradually, and lastly flavoring.

Chloral.—Recent observations by Alexander Gunn [744 No.1278,p.533; 6 Feb.16,'95] show that under some circumstances crystals of chloral hydrate are subject to a peculiar yellow discoloration. This affects only the surface of the crystals and seems to be due to the accidental presence of a particle of iron in the stock-bottle and to the liberation of free hydrochloric acid. Similar discoloration was easily produced by leaving some ordinary white crystals of chloral hydrate in a test-tube for a week together with a minute fragment of iron.

Geo. Troup Maxwell, of Jacksonville, Fla., [814 Oct.1,'94] has used a solution of chloral hydrate—10 grains (0.65 gramme) to the ounce (31 grammes) of water—as the only application to a severely lacerated wound of the hand, healing taking place rapidly and without any offensive odor. He is frequently called upon by dentists to administer anæsthetics, and always prescribes the following:—

℞ Chloralis, ... 1½ drachms (6.0 grammes).
Tr. lavandulæ, ... ½ fluidounce (16.0 grammes).
Aquæ rosæ, ... ad 1 pint (0.5 litre).

A small quantity of the solution held in the mouth prevents offensive odor from putrescent blood and lacerated tissues, and quickly hardens the gums. The mixture is useful as a deodorant in persons with decayed teeth or putrescent particles of food retained between the teeth. It has given satisfaction in the treatment of syphilitic ulcers of the pharynx. As it can be swallowed with impunity, the ulcers may be thoroughly bathed by it.

Jacoby [373 p.748,'94; 673 Mar.,'95] has observed several cases in which, after an ordinary dose of chloral, patients were peculiarly affected upon taking a moderate amount of stimulants, such as claret, this effect being noticed if the stimulant were taken at once or the following day. It consisted in a sense of oppression with dyspnœa and congestion of the face. These symptoms were not observed after the use of chloral alone or wine alone.

Chloralamid.—C. C. Browning, of Highland, Cal., [61 Oct.27,'94] states that he has used this drug with satisfaction in the following conditions,—viz., neurasthenia, hysteria, pleuritis, phthisis, typhoid fever, melancholia, mania, dysmenorrhœa, epilepsy, and disorders due to organic diseases which were not accompanied by an extreme degree of nervous excitement or pain, especially in diseases of the digestive and genito-urinary systems. He has also used it with good result in irritable condition of the nervous system due to cigarette-smoking. The preferable manner of administration is in solution. It may be dissolved in alcohol in proportion of 1 grain (0.065 gramme) to 1½ minims (1 cubic centimetre). It is slowly dissolved in water, and more readily in water to which about 3 minims (0.2 cubic centimetre) of dilute hydrochloric acid to each 1 gramme (15½ grains) of chloralamid to be dissolved has been added. These solutions may be diluted with water or some other agreeable vehicle for administration. In no case must it be dissolved by aid of heat or administered in hot liquids. It is incompatible with caustic alkalies and the alkaline carbonates.

Chloralose.—Thomas and Wolf [197 July,'95] tried this hypnotic in 21 cases of chronic affections, 11 of tuberculosis, beginning with 0.15 gramme (2¼ grains) in three doses in a little water at bed-time, and increasing to 0.25 gramme (4 grains) in several days. In 13 of the cases an uninterrupted sleep of six to eight hours was procured; in the rest the results were not satisfactory. The remedy did not prevent coughing, but the patients coughed without noticing it; it diminished the dyspnœa and did not affect the appetite or digestion, being apparently eliminated unchanged in

the urine. Of the untoward symptoms the most marked was complete amnesia next morning.

Khmielefski, of Odessa, $^{6}_{\text{Apr.20,'95}}$ finds chloralose somewhat less certain in its action than trional; the amount required to produce sleep varies much in different cases and at different times in the same person. It acts more rapidly than trional, but the sleep is less prolonged. In doses larger than 0.5 gramme (7¾ grains) slight symptoms of poisoning (spasms, etc.) frequently appear, but they soon pass away, and need not cause alarm. It never causes headache or other unpleasant after-effects. It may be given in cases where trional is contra-indicated, as in melancholia, hypochondriasis, and psychoses accompanied by a depression. If there is any gastro-intestinal disorder, chloralose is almost the only hypnotic which can be given for a prolonged period without harm.

Haskovec, $^{1090}_{\text{Oct.,'94}}$ who used it in eighty-two cases of insanity in doses of from 0.1 to 1 gramme (1¾ to 15½ grains), found it preferable to give it in solution, but made with boiling water. In all excited patients a sedative effect was noticed in from fifteen to twenty minutes after taking the drug. The time required for the hypnotic effect was very variable; unpleasant sensations were seldom complained of, and no undesirable effects on pulse, respiration, digestion, and excretion were observed. The appetite in many cases was improved. After administration for several weeks, it was often noticed, in mania, that smaller doses were sufficient for the same effect. This was not observed in general paresis and melancholia. The most satisfactory results were obtained in young maniacs, epileptics, and alcoholics. The commencing dose should always be small, and it should not be given in doses exceeding 1 gramme (15½ grains).

Much has been said of late of the accidents arising from the use of chloralose when given in too large doses or in cases in which it seems to have been contra-indicated. Marandon de Montyel $^{92}_{\text{May,'95}}$ endeavors to re-establish its position in therapeutics by giving its precise indications in certain nervous and mental affections. He bases his statements on its use in fifty-eight cases, and feels warranted in condemning its employment in insanity, general paralysis, and senile dementia, and in recommending it in epilepsy, especially in the insomnia due to this affection. Its favorable influence is also exercised on the acute attacks, which it shortens and lessens in frequency. An interesting point is that such patients are extremely susceptible to its physiological action, and that therefore they suffer from its inconveniences as well as profit by its advantages. He does not hesitate, however, to give such patients 0.50 and even 0.80 gramme (7¾ and 12½ grains)

from the outset to epileptic patients. Huchard [35 June 22,'95] characterizes this as a dangerous practice, and expresses the opinion that the posology of the drug (0.10 to 0.20 gramme—1¾ to 3 grains) should be well borne in mind, in the interest not only of the patient, but also of therapeutics itself.

Rendu [14 Mar.10,'95; 673 Apr.] states that he ordered 0.25 gramme (4 grains) of chloralose for a tuberculous patient, accustomed to hypnotics, who took the dose at midnight. At 2 o'clock he was called upon to see her, finding her in a comatose condition, completely insensible, the pulse 180, the movements of the heart imperceptible, the face and extremities cyanosed, and with epileptoid movements of the limbs. The skin was covered with cold perspiration and death seemed imminent. He gave a first and a second hypodermatic injection of ether, but, the convulsions increasing, he injected 0.0025 gramme ($\frac{1}{25}$ grain) of morphine, and toward 5.30 A.M. the patient began to improve, recovering consciousness at 8.30 A.M. without any knowledge of what had occurred. A slight difficulty of speech persisted for some hours afterward. In commenting on this report an editorial writer in *la Médecine Moderne*, March 13th, states that five or six similar instances were published in that journal during 1894, in which tetanic, convulsive, or cataleptic symptoms, with amnesia and intellectual disturbance, had been observed after the use of chloralose in cachets of from 0.20 to 0.40 gramme (3 to 6 grains). Similar cases have also been reported to the Société de Thérapeutique. The frequency of these symptoms is somewhat difficult to determine. A Russian physician, Chemelewski, observed them in two out of seventeen cases of insanity in which he made use of the drug. On account of the intellectual disturbance, the loss of memory, sometimes lasting several hours, and the fear experienced by the family of the patient on the appearance of such symptoms, it would be wise to restrict the use of chloralose, and to advise the patient, or, at least, the attendants, of the possibility of nervous symptoms supervening upon its use.

A very similar case to Rendu's is described by Herzen, of Geneva. [197 June 20,'95] The patient was suffering from phthisis, and 0.20 gramme (3 grains) of chloralose were administered. An hour later he became collapsed,—pale, unconscious, covered with sweat, and with a flickering and very rapid pulse. Every fifteen or thirty seconds he had convulsive movements of the extremities and of the muscles of mastication. Ether was administered subcutaneously, and after two hours the contractions ceased, and in four hours the patient had recovered. He was accustomed to the use of morphia and chloral.

Cases in which serious symptoms were observed from the

employment of the remedy are recorded by Delabrosse [203 No.15,'95] and Dufour. [46 Dec.15,'95]

Chloride of Ammonium.—See Ammonium.

Chloride of Lime.—See Calcium.

Chloride of Methyl.—See Methyl.

Chloride of Sodium.—See Sodium.

Chlorobrom.—This drug, which is a mixture of chloralamid and potassium bromide, was administered by Wade [278 Apr.,'95] to sixteen patients, and was found valuable in cases of simple melancholia, but failed to act in active melancholia. In acute mania it took longer to act, but was effectual in producing sleep, which was as long and refreshing as that produced by other hypnotics. Uniformly good results followed its use in cases of dementia with insomnia. The dose given was 30 grains (2 grammes) of each of the component drugs, and the time required to induce sleep was somewhat longer than in the case of paraldehyde or sulphonal, being about three-quarters of an hour in cases of mania and one hour in melancholia. No bad after-effects were recorded.

Chlorocaffeine.—See Caffeine.

Chloroform.—V. G. Stadnitzky [586 No.43,'94; 2 Feb.9,'95] has carried out a series of elaborate experiments on seven healthy young men in order to study the influence of chloroform, when administered internally, on the gastric functions. In each instance the experiment lasted fourteen days, being divided into two equally-long stages, during the second of which the subject was given from 3 to 10 drops of the drug (with water) three times daily. The author's general conclusion is to the effect that $CHCl_3$ markedly improves all the functions of the stomach, which fact suggests that the drug might prove very valuable in the treatment of various gastric disturbances and, before all, in dyspepsia.

D. Lemoine [2000 June 20,'95] claims that, when administered internally, chloroform possesses a triple action,—bactericidal, anæsthetic, and congestive. For this reason it is of value in cholera, gastric disease, typhoid fever, influenza, phthisis, whooping-cough, etc.

Citrophen.—This is a combination of citric acid and phenetidin, first obtained by Israel Roos. [673 Aug.,'95] Citric acid being tribasic, three groups of phenetidin are required to saturate it; hence a molecule of citrophen contains two more molecules of phenetidin than does phenacetin and lactophenin. It is a white powder, agreeable to the taste, and soluble in forty times its weight of cold water and fifty times its weight of hot water. It can be used subcutaneously and in solution. Benario [69 No.26,'95] has found it to be well supported as an antipyretic and antineuralgic, in doses of 0.5 to 1 gramme (7½ to 15 grains). The daily amount can be

increased to 6 grammes (1½ drachms), if necessary. Benario has used it in typhus fever, the fever of phthisis, migraine, and neuralgia, with satisfactory results.

Coal-Oil.—See Kerosene.

Cocaine.—G. H. Seagrave $^{26}_{\text{Dec.,'95}}$ has for the last five years been in the habit of using hypodermatic injections of cocaine in lumbago, sciatica, pleurodynia, all forms of muscular rheumatism, and also for neuralgia of the head and face. For all, except neuralgia of the head and face, he injects from ¼ to ½ grain (0.015 to 0.03 gramme) over the seat of pain; for the two latter he injects into the arm. In a very large percentage of cases the result is most striking. The pain disappears almost entirely for some hours, to return in a much milder form. He continues the injections so long as the pain lasts.

Maurel, of Toulouse, $^{14}_{\text{Nov.14,'94}}$ shows that under the influence of this alkaloid the leucocytes undergo changes; they become spherical and rigid, increase in size, and no longer adhere to the vessel-walls. On the other hand, the capillaries contract, and thrombosis and embolisms, particularly pulmonary embolisms, may be produced. These changes may be seen after even small doses of concentrated solutions. His experiments show that intra-arterial injections, made in the direction of an unimportant viscus, are much less dangerous than intra-venous injections.

Codeine.—Etiévant $^{362}_{\text{Nov.10,'95}}$ calls attention to the fact that codeine may be adulterated with candied sugar, the crystals of which, at first sight, resemble those of the alkaloid. The falsification can be discovered by means of Fehling's solution and the polarimeter. Codeine deviates to the left and sugar to the right.

Codeine Iodate.—See Iodic Acid.

Codliver-Oil.—T. Robinson $^{6}_{\text{Nov.17,'94}}$ recommends the following codliver-oil tonic:—

℞ Extract of malt,	1½ ounces	(46.50 grammes).
Pancreatized codliver-oil,	1 ounce	(31.00 grammes).
Spirit of chloroform,	1 drachm	(4.00 grammes).
Oil of cinnamon,	6 minims	(0.39 gramme).
Water,	up to 6 ounces	(186.00 grammes).

M. Sig.: A tablespoonful to be taken three times a day after meals.

This is of value as a food in building up the organism and increasing the heat of the blood in patients suffering from cold feet, physical and mental depression, headaches from exhaustion, aching of the nerve-centres, indolence of the digestive, menstrual, and other nerve-functions, intolerance of physical exercise, and subnormal temperature.

Condurango.—The physiological and therapeutic effects of

condurango and condurangin—which is not an alkaloid, but a resino-glucoside of a complex nature—have been studied by a large number of European and American observers during more than twenty years, but there is still great want of agreement among them. The most remarkable observation on the physiological action of condurango which has been made is, perhaps, that of Guyenot, [296 Nos.5,6,'95] whose experiments in Dujardin-Beaumetz's laboratory, in the Hôpital Cochin, in Paris, led him to believe that this drug exerts a toxic effect on the nervous system, but not until twenty-four hours after its injection into the body. This may possibly afford an explanation of the somewhat contradictory results reported by previous observers. It may be remarked that Gianuzzi and Buffalini ascribed to condurango tetanizing powers. Lauder Brunton [6 May 3,'84] found that, when the preparation employed is deprived by filtration of the coarse particles of the bark, no tetanic symptoms are produced, though when these are not removed the injection of the watery extract into the jugular vein causes an animal to die with opisthotonos. As to the therapeutic effects of condurango, the observations in the Hôpital Cochin fully confirm what has been stated by many observers as to its usefulness in ulcer and cancer of the stomach in relieving the gastralgia, catarrh, hæmatemesis, and vomiting, and in improving the appetite; but lend no support to the statements made by Drszewski, Burkman, Barth, and others that it actually cures cancer of the pylorus. According to R. Wagner, [360 Feb.,'92] the effect of condurango on the digestive functions of dyspeptics and cancer patients is slight and inferior to that of nux vomica, while it is quite incapable of producing much effect on the gastric juice. According to Cheitsoff, it is the pancreatic juice and the bile that are chiefly increased.

An editorial writer [80 Aug.15,'95] states that this drug is considered a tonic and antiseptic, and by some to have a specific action in cases of cancer. This action, however, is very doubtful, and is denied by many good authorities. Its therapeutic value has been tested in divers cutaneous diseases,—pityriasis, pemphigus, syphilitic ulcers, leprosy, etc,—but it is impossible to judge fairly as yet of its action in these cases. Condurango has its place among the stomachics where assimilation is poor and the nutrition at fault. It is capable of calming the gastralgia accompanying ulcer or cancer of the stomach, of diminishing and often arresting the vomiting caused by somatic lesions of the stomach, of having a beneficial action on the hæmatemesis, of increasing the appetite and diminishing the gastric catarrh. It is administered in powder, ½ to 1 drachm (2 to 4 grammes) per diem. As a wine, 2½ drachms (10 grammes) to 3 ounces (90 grammes) of wine, 3 teaspoonfuls per diem.

Copaiba.—W. Rollo [953 V.40.p.231; 814 July 1,'95] remarks that pills of copaiba made with yellow wax—the usual excipient—possess a great many drawbacks. They not only require a long time to prepare and, on long standing, become brittle, but, on account of the non-digestibility of the wax, only a small quantity of the copaiba is assimilated, most of it passing through the body unchanged, and thereby liable to cause diarrhœa and gastric disturbances. He recommends adding from 1 to 3 drops of water to each gramme (15½ grains) of the balsam, and then enough calcined magnesia to form a pill-mass, to which any other ingredient may be added before forming it into pills. Pills of balsam of Peru can be prepared in the same way.

G. W. Sequeira [2 Nov.17,'94; 213 Jan.,'95] has observed a pemphigoid eruption, which appeared after a patient had taken eight copaiba capsules. It had the form of erythematous patches on the face and limbs, and, in addition, the skin over each tendo Achillis was raised into bullæ, some of which were nearly as large as a hen's egg.

Copper.—Alix Hrdlicka, of New York, [1 Sept.29,'94] has, for the past two years, used arsenite of copper in inflammatory derangements of nearly all the mucous membranes of the body, from that of the gastro-intestinal tract to those of the eye, ear, nose, mouth, and pharynx, on the one hand, and the urethra, bladder, vagina, and rectum, on the other; the results prove that it will control, alone or accompanied by other measures, when administered in time and in the proper way, most of the acute and non-specific uncomplicated inflammations of these structures. The earlier it is given, the better and more rapidly it acts; the manner of its administration is purely topical, being best in solutions of from 1 to 50,000 or 100,000. These solutions are easily made by dissolving one of the common $\frac{1}{100}$-grain (0.00065 gramme) pellets in, respectively, 1 or 2 ounces (31 or 62 cubic centimetres) of water, and are applied at intervals seldom longer than an hour (bladder, urethra, and nose), and often not longer than from ten to fifteen minutes. The general character of cases in which it is indicated are acute and subacute inflammations attended with pain, suffusion, and a more or less watery discharge. It has little action where the discharge is thick and persistent, unless the affected surface is thoroughly cleansed by irrigation or lavage before the solution is applied.

John E. Bacon [71 Feb.,'95] states that copper arsenite, judging from his own experience, deserves wider recognition. As a remedy for vomiting from any cause, except central lesion, it is extremely valuable. For this purpose he uses a solution made by dissolving $\frac{1}{100}$ grain (0.00065 gramme) in 4 ounces (125 cubic centimetres)

of distilled or boiled water, giving a teaspoonful every fifteen minutes for two or three hours. As a remedy for irritative diarrhœa of children it acts with a promptitude and certainty quite foreign to chalk mixture and opium preparations *ad libitum*.

For cases of gastro-intestinal irritation, especially apt to occur in teething children, a combination of arsenite of copper with arsenite of strychnine, according to the formula of Aulde, used in the same strength, exerts an extremely prompt beneficial effect, antiseptic and sedative. This remedy also is one that can be carried conveniently in the pocket-case and the solution made at the bedside,—no small consideration to country-physicians.

M. W. Peyser, of Richmond, $\frac{71}{\text{Oct.,'95}}$ also praises the remedy in intestinal affections.

Cornutine.—See Ergot.

Corrosive Sublimate.—See Mercury.

Cotarnin Hydrochlorate.—This hæmostatic, called by Gottschalk $\frac{575}{\text{B.36,p.410,'95}}$ "stypticin," is especially adapted for checking uterine hæmorrhages. The formula is $C_{12}H_{13}NO_3+H_2OHCl$, and it is described as yellow crystals very freely soluble in water. The author has employed it with excellent results in various hæmorrhages by injecting 0.2 gramme (3 grains), in 10-per-cent. solution, into the gluteal region. In profuse menstruation he administers internally 0.025 gramme ($\frac{3}{8}$ grain) of the remedy in capsules, five times daily for four or five days before the expected periods, and 0.05 gramme ($\frac{7}{8}$ grain) four or five times daily during the periods. Stypticin is contra-indicated in threatened abortion.

Creasote.—James K. Crook $\frac{462}{\text{No.9,'95}}$ has made use of this remedy for the past six years and finds two very gratifying results. 1. It possesses undoubted power to relieve the fœtor of the expectoration in foul-smelling cases of bronchiectasis and phthisical cavities. 2. In small doses (1 to 2 minims—0.065 to 0.13 gramme—thrice daily) it promotes the appetite and tends to stimulate the powers of digestion. Beyond this he has not found that it modifies in any appreciable manner the ordinary course of phthisis. In several cases where it was relied upon as an expectorant, other remedies of this nature having been withdrawn, the results were of a disappointing character, the only apparent effect being the odor which it imparted to the breath. He concludes that its use may, with safety, be limited to cases manifestly requiring a pulmonary disinfectant, and to those accompanied with a feeble appetite, flatulency, pyrosis, and other evidences of fermentative action in the stomach and intestines.

The following procedure is recommended by von G. Vulpius for making a syrup containing 10 per cent. of creasote $\frac{1213}{\text{No.16,'95}}$; $\frac{814}{\text{June 15,'95}}$:

Triturate 10 parts of beech-wood creasote with 3½ parts of calcined magnesia; let it stand, well covered, for several days, mixing it every hour for a few minutes; then pour upon it gradually, with constant stirring, a mixture of 16½ parts of peppermint-water and 70 parts of simple syrup. Both the odor and taste can still more be covered by the addition of 10 drops of spirit of peppermint. Another more convenient, though not more expedient, process is this: The magnesia and creasote, in the above proportions, are put into a bottle and moistened with the peppermint-water; then the simple syrup is added and the whole is vigorously shaken. This is repeated at intervals of a few hours. At the end of two days the mixture will have become thick, so as to be unable to flow; but by vigorous shaking or stirring with a glass rod it can be rendered liquid again, after which it will not solidify again. On the contrary, the mixture becomes more limpid every day, but remains homogeneous, separating only after long standing or not at all.

B. Ray Browning, of Littleton, N. C., $\frac{1}{\text{June 15,'95}}$ observed deafness following a course of treatment by creasote; hearing gradually returned some months after the remedy had been discontinued. The patient fearing that her 12-year-old son might have bronchitis, from which she herself had been suffering, secretly administered the same dose of the drug (10 minims—0.65 cubic centimetre) to the boy, with the result that he also became deaf.

L. Nimier, of Paris, $\frac{17}{\text{Aug.31}}$ in two cases of pulmonary tuberculosis healed by rectal injections of creasote, 30 drops daily, noted that the urine, though clear on being passed, soon became black, and resembled that excreted in carbolic-acid poisoning. On substituting guaiacol for creasote, one of the patients continued to pass urine which became black. The author believes that these patients were peculiarly susceptible to the phenols.

Creasotal.—Reiner $\frac{57}{\text{Sept.15,'95}}$; $\frac{2}{\text{Jan.25,'96}}$ points out that the undoubted value of creasote in lung affections is somewhat discounted by the irritant effects of large doses leading to chronic inflammation of the alimentary tract. Creasotal has been introduced to overcome this disadvantage; it breaks up in the intestine into creasote and carbonic acid. The decomposition is a slow one, so that the organism is more or less continuously under the influence of creasote, which is excreted by the lungs and kidneys. It may be given alone in teaspoonfuls, or if the patient is very susceptible to its slight taste this may be covered by milk, sweet wine, etc. Very large doses (300 grains—9½ grammes—a day) can be administered without upsetting the digestion. Just at first there may be some nausea or even vomiting, but these do not contra-indicate the con-

tinued use of the drug, as they very soon pass off. Creasotal has an extraordinary power of improving the appetite, which may even become ravenous by its use. Reiner's conclusions are as follow: 1. Creasotal has precisely the same specific action upon pulmonary tuberculosis as creasote. 2. In addition to this it is of exceptional value in the symptomatic treatment of tuberculosis, diminishing and deodorizing the expectoration and increasing the appetite. 3. Creasotal has a favorable influence on the general condition, improving nutrition and leading to increase of body-weight and so indirectly limiting the spread of the lung affection. 4. It is to be preferred to creasote on account of its milder action, and is indicated in cases where the latter is tolerated with difficulty or not at all. Furthermore, it may be used in non-tuberculous affections, such as carcinoma of the uterus, for the sole purpose of increasing the appetite and so improving the bodily health.

Creolin.—A. G. Wollenmann, of Ferdinand, Ind., $\frac{1163}{\text{Oct.,'94}}$ advises the use of creolin as a dressing for wounds. It has no toxic effects and is an excellent disinfectant.

Wells $\frac{1033}{\text{Sept.,'95}}$ calls attention to the superior value of creolin as an antiseptic for obstetric use. Used in quantities of 1 drachm (4 grammes) to the quart (litre) of water it has no irritating effect as has corrosive sublimate.

Creosal.—This is the name given by Balland and Dubois to a new compound of creasote and tannic acid. $\frac{953}{\text{V.40,p.271,'95}}$; $\frac{814}{\text{June 1}}$ It is obtained by heating equal quantities of beech-wood creasote and pure tannic acid to 80° C. (176° F.), and adding, gradually, a certain quantity of phosphorous oxychloride. The temperature is then raised, and, so soon as the fumes of hydrochloric acid cease to be given off, the mass is poured into a cold, diluted solution of caustic soda. From this dark-brown liquid the creosal is precipitated by means of ordinary salt; it is then well washed and dried on the steam-bath. The finished product occurs as a dark-brown, very hygroscopic powder, which is readily soluble in water, alcohol, glycerin, and acetone, but insoluble in ether and aqueous solutions of the fatty acids. Creosal is precipitated from its solutions by the mineral acids, sodium chloride, potassium acetate, and most of the other mineral salts, and by the alkaloids, proteid substances, and starch. Creosal is an astringent similar to tannic acid, and has also antiseptic properties. Its solutions have a creasote-like taste and odor, and are said to be devoid of caustic action. It may be employed either in substance mixed with sugar or in aqueous solution. It may be given in daily doses of 3 grammes (46 grains), representing about 1.8 grammes (27 grains of creasote. Creosal is reported as having given good results in inflam-

matory conditions of the mucous membrane of the larynx and bronchial tubes, but definite data are not given.

Croton-Oil.—Dunstan and Boole [744 V.40,p.5; 90 Aug.,'95] have been able to separate from croton-oil, and also from the so-called croton-oleic acid, a resinous substance having the vesicating properties of croton-oil. To isolate this substance the portion of the oil readily soluble in strong alcohol is saponified by means of lead-oxide and water. The dried salts obtained are dissolved in alcohol, and repeatedly fractionated from this solution by addition of water, the last fraction being a lead-salt (?) of the vesicating resin. It is a hard, pale-yellow substance, nearly insoluble in water, light petroleum, or benzin, but readily soluble in alcohol. Chemically it is an indifferent substance, having the formula $C_{26}H_{36}O_8$, in all probability being a lactone or anhydride of complex structure.

Dmochowski and Janowski, [273 B.84,H.1,2,'94; 1 Dec.8,'94] in experiments on the pyogenic action of croton-oil, thinking that the oil possessed only an irritating action, associated it with the typhoid bacillus in order to increase its pyogenic properties, and were astonished to see the oil alone produce suppuration, in spite of all the antiseptic precautions taken. After a systematic study of this question they drew the following conclusions: Croton-oil produces in the dog inflammation of various degrees, which depend on the dilution of the oil. Strong solutions produce cutaneous necrosis, sanguineo-serous inflammation, and a very extensive cellular infiltration. Suppuration is not produced with concentrated solutions, because the necrosis sets in before the suppuration can be produced. One of the degrees of inflammation produced by croton-oil without the aid of micro-organisms is established by suppuration. To produce suppuration requires dilutions of from 1 in 20 to 1 in 100, which sometimes cause necrosis of the skin and of the cellular tissue. Suppuration is not, then, a specific reaction of the tissues to specific excitants, but a symptom dependent on the intensity of the excitation. Strong and moderate solutions give an hæmorrhagic character to the inflammation. Weak solutions may produce a passing serous inflammation with a limited infiltration under the form of a more or less circumscribed tumor. In rabbits solutions of croton-oil of from 1 in 30 to 1 in 60 cause benign suppuration, which sets in relatively late,—at the end of fifteen days.

Cutol.—See Aluminium.

Dermatol.—See Bismuth.

Dermol.—See Bismuth.

Digitalis.—François-Franck, of Paris, [14 July 3,'95; 61 July 27] studied the action of digitalis on the heart and the effect of different digital-

ines, finding that in a therapeutic dose digitalis produced uniform definite effects in mammals. It slowed the beat of the accelerated heart, regulated the beat of the arhythmic heart, and greatly augmented the systolic power and the diastolic resistance. The author holds that these effects are developed equally on the two sides of the heart, contrary to the views of Germain Sée, that the action is greater on the right heart, and contrary to the German physiologists that the action is manifested on the left heart. In a toxic dose digitalis produces first an excessive slowing of the heart-movement, but a special arhythmic beat, manifested by a dicrotic pulse. Afterward, the heart accelerates itself secondarily, becoming irregular; the contractions are precipitated by a sort of semitetanic ventricular movement interrupted by prolonged intermissions, finally causing death of the heart. In mammifera, as in cold-blooded animals, death is always produced in systole, and not in diastole, as has been affirmed. The author states, in relation to the mechanism: (1) the effects produced by the ventricles are not subordinate to a primary action on the auricles; (2) the action produced on the heart is not secondary to a primary action on the contractile vessels of the aortic system, as the gradual ascension of aortic pressure does not produce the same effects as digitalis, as those effects persist even when the heart is separated from the aorta; (3) the abatement of velocity produced by digitalis resembles neither that which is produced by suspension of the activity of the accelerator nerves of the heart nor those produced by excitation of the heart-moderators. It thus seems, from François-Franck's experiments, that the action of digitalis is first manifested on the cardiac muscular fibre.

In regard to digitaline, François-Franck $\frac{14}{\text{July 8,'95}}$; $\frac{61}{\text{July 27}}$ states that the fatal dose of French chloroformic crystallized digitaline is 0.007 gramme ($\frac{1}{9}$ grain) to the kilogramme ($2\frac{1}{5}$ pounds) of animal weight. That of the amorphous digitaline is tenfold greater, and that of the German digitoxine is three times less. One gramme (15 minims) of the infusion of the leaves of digitalis produces the same action as 5 or 6 grammes ($1\frac{1}{4}$ or $1\frac{1}{2}$ drachms) of digitaline, although one can extract but 1 milligramme of the alkaloid. It is probable, according to the author, that the active principles mostly reside in the leaf.

E. Bardet, $\frac{296}{\text{No.2,'95}}$; $\frac{5}{\text{May,'95}}$ from a study of the French crystallized digitaline and the German digitoxine, has arrived at the following conclusions: 1. Crystallized digitaline, so-called chloroformic, is the only one of the products derived from digitalis which represents a really definite principle and one of constant action and

well recognized from a therapeutic stand-point. 2. Digitoxine is not, as has been alleged, a principle identical with the crystallized or even the amorphous digitaline, but is a non-crystalline, amorphous mixture of indefinite composition. Its activity is variable, and may be equal or even two or three times stronger than the crystallized digitaline. 3. The amorphous digitaline, so-called chloroformic, contains, as well as the digitoxine, a body, probably a glucoside, of considerable, but of varying, activity. 4. There is a great practical advantage in maintaining in the pharmacopœias only those definite bodies of constant activity; consequently the crystallized digitaline, so-called chloroformic, being the only definite active principle of digitalis, ought to be the only one prescribed. 5. The Therapeutic Society ought to see that the French Codex suppresses the amorphous digitaline and admits only the chloroformic crystallized digitaline.

From the experience of Edgren $^{370}_{\text{v.57,pp.649 to 679}}$; $^{673}_{\text{Feb.,'96}}$ it appears that 0.001 gramme ($\frac{1}{64}$ grain) of crystallized digitaline administered in one dose possesses a cardiac regulating and diuretic action equal to or even greater than 200 to 300 grammes (6½ to 9½ fluidounces) of the infusion of digitalis. These effects were always constant, although varying in degree according to the state of the patient. In no case did the drug cause symptoms of intoxication. (Report of Corresponding Editor Eklund, Stockholm.)

[The facts that digitalis is the most valuable remedy that we have in heart disease, and that one true alkaloid representing its full medicinal value would enable us to administer it readily in almost every case where the drug is indicated, have caused chemists and physicians to search anxiously for a method by which such an alkaloid might be isolated. During the past year or two the activity in this line of research has been even greater than before, and, as a result, a number of exhaustive papers have been published. Personally, we have no confidence whatever that any so-called digitaline, whether called digitalinum verum or not, can supplant the digitalis itself, for we believe that the good results obtained from digitalis depend more largely upon the complex constituents of the drug than the presence of any single alkaloid.]

Of the various derivatives of digitalis the one most constant in its effects and more constant than digitalis itself is considered by G. Corin $^{296}_{\text{May 8,'95}}$; $^{80}_{\text{Sept.16}}$ to be digitoxine. Although there has been much said against the constancy of its action, the author believes that it is entirely due to a false method in its prescription and use. In order that a fair judgment can be made, it must be administered according to the best method. It should not be forgotten, for instance, in the case of this alkaloid, that it is nearly insoluble in

water. It is not alone necessary to dissolve it in water, chloroform, and alcohol, but it is also necessary to guard against its reprecipitation when it comes in contact with the fluids of the body; for, if it is thus reprecipitated, its action may become cumulative when it is again absorbed in mass. Effects entirely dissimilar may thus be produced by the same dose. To avoid such results the author employs the following formula:—

℞ Digitoxine,	. . .	$\frac{2}{64}$ to $\frac{3}{64}$ grain	(0.002 to 0.003 gramme).
Chloroform,	. . .	10 minims	(0.650 gramme).
Alcohol at 90°,	. .	3 fluidrachms	(12.000 cubic centimetres).
Aquæ dest.,	q. s. ad	5 fluidounces	(155.000 cubic centimetres).

Sig.: To be taken in three doses.

With this solution the author has never seen a reprecipitation when in contact with water or physiological fluids or serum. On the contrary, solutions in alcohol of 20-per-cent. strength, which some authors have employed, reprecipitate under similar circumstances, thus explaining the failures which they have experienced in their experiments. The drug has been used with excellent effect, and has proved clinically its superiority over the other alkaloids derived from digitalis in the treatment of cardiac asthenia and pulmonary weakness. Experiments and clinical research lead him to believe that digitoxine has a veritable abortive action in the progress of an infective pneumonia.

Wenzel, of Unverricht's clinic, $\frac{319}{\text{May 11,'95}}$; $\frac{2}{\text{June 1}}$ has treated with it 9 patients,—3 with valvular disease, 3 with myocarditis, and 3 with nephritis. In 1 of these cases the treatment had to be repeated after an interval, and in 2 others it was adopted on three separate occasions. In addition, 3 other patients suffering from other incurable disease, as well as cardiac complications, were also treated with digitoxine. In most cases the patients were desperately ill with disturbed compensation, engorgement of the pulmonary circulation, and marked diminution in the urine. When possible, the patients were not treated for twenty-four to thirty-six hours after admission. The drug was always administered by clyster; 15 grammes (3¾ drachms) of the following solution were administered by the rectum in 100 grammes (3¼ fluidounces) of lukewarm water, at first thrice, then twice, and, lastly, once daily: digitoxine, 0.01; alcohol, 10; aq. dest., ad 200. The single dose thus given was 0.00075 gramme ($\frac{1}{85}$ grain) of digitoxine. Only in 2 cases was an unpleasant result noted,—namely, vomiting,—and this soon ceased. The author gives details of 12 cases. The duration of treatment and the effects on the breathing, pulse, quantity and specific gravity of the urine, as well as on the amount of albumin present, were carefully noted. The author never had

negative results, the patients responding more or less promptly to the digitoxine. It was successfully used in cases of valvular disease and myocarditis, even when other remedies, including digitalis, had been tried in vain. The pulse became stronger and less frequent. The cyanosis and dyspnœa promptly and surely disappeared, and the diuretic action of the remedy was very marked. The method of administering digitoxine reduces to a minimum any disturbance of the alimentary canal. The prompt results obtained by the above-mentioned doses suggest that even smaller ones might be sufficient.

The phenomena of digitalis poisoning are so numerous that Dotschewski $\frac{586}{\text{Nos.29,30,'95}}$; $\frac{22}{\text{Sept.11}}$ has attempted to reduce them to the effects of the nervous system, which apparently suffers severely. The chief toxic symptoms enumerated in text-books are: Pain in the region of the stomach, general malaise, vomiting, diarrhœa, cephalalgia, vertigo, dilatation or contraction of the pupils, impaired vision, with occasional hallucinations, coldness of extremities, pallid skin, cold sweats, and extreme muscular feebleness. The pulse is irregular, but the heart is very excitable. Cumulative poisoning from digitalis, in cases in which the drug has been used for some time in cardiac compensation, is not infrequently followed by venous congestion of the cerebral vessels with œdema in the brain-substance, the symptoms being vertigo, feeling of numbness in the head, fainting, feeble memory, and weak voice. These symptoms frequently occur in cardiac affections where compensation is disturbed, and may be produced by large doses of the drug or its cumulative retention. The author relates a typical case showing this cumulative effect.

George F. Koehler, of Portland, Ore., $\frac{59}{\text{July 6,'95}}$ mentions a case of confinement in which an assistant gave the patient 2 heaping teaspoonfuls of tincture of digitalis by mistake, 1 teaspoonful of fluid extract of ergot being given soon afterward. About 3 fluidrachms (12 cubic centimetres) of tincture of digitalis were given and retained (no emetic being used), there being only moderate amount of systemic disturbance. The severity of the after-pains and the apparent antagonistic action of the ergot tend to make the case one of clinical interest. Friedheim, of Leipzig, $\frac{69}{\text{No.11,'95}}$ reports a case of exanthem following the use of digitalis. The patient took 3 teaspoonfuls of tea with some tincture of digitalis and valerian every day for a week, when there appeared on his back, thorax, and abdomen an eruption in the form of papules on a dark base; the papules were disposed in groups, and the skin surrounding each group was erythematous. During the same time a crop of furunculi came out. The rash lasted for fifteen days.

Digitalis is rarely followed by a rash; there are, however, a few cases on record.

Diuretin.—Askanazy, of Königsberg, [326 B.56,H.3,4; 15 Mar.,'96] remarks that diuretin has now been in use for nearly ten years, and, although experience has shown that it is a remedy of considerable value, its administration has not been as extensive as it should be. He regards it as a valuable diuretic, rarely failing in cases of heart and vascular disease, although it is less constant in chronic nephritis. In attacks of cardiac asthma, angina pectoris, and in mixed cases, as well as in chronic cardiac dyspnœa, diuretin is to be recommended as being fairly constant and acting rapidly. A primary action upon the heart cannot be ascribed to it. In very large doses, such as 75 to 100 grains (5 to 6½ grammes) per day, it may induce severe collapse, and it is therefore desirable that a maximum dose of 45 to 60 grains (3 to 4 grammes) should not be exceeded.

Panowski [114 B.24,H.2,4; 451 Dec.,'94] finds that a distinct tonic action is exerted by the drug on the cardiac muscle, somewhat resembling that of caffeine, but inferior to that of digitalis, and that to the increased blood-pressure, owing in part also to stimulation of the nerve-centre, its marked diuretic action is due. He thinks it will prove of more value in dropsy arising from affections of the cardiac valves or muscle than in affections of the kidney. The drug is best given in powders of 15 grains (1 gramme) four or six times a day. The diuretic action will be noticeable between the second and sixth days.

Duboisine.—E. Marandon de Montyel [3 Mar.6,'95; 2 Mar.23] has observed simultaneously in the Ville-Evrard Asylum twelve cases in which extract of duboisine caused toxic symptoms. The patients were epileptics who had first been treated, with favorable results, by hypodermatic injections of neutral crystallized sulphate of duboisine in doses of 0.001 to 0.004 gramme ($\frac{1}{64}$ to $\frac{1}{16}$ grain) and afterward by injections of extract of duboisine in the same dose. The accidents occurred on the day when a new bottle of extract, procured from the same source as the others, was opened, and the patients received the dose to which they had been accustomed. The toxic symptoms varied in different subjects. There was a peculiar quasi-drunken condition, with giddiness, vomiting, tingling of the skin, psychical and motor excitement, hallucinations, and delirium, sometimes followed by a leaden sleep. Prolonged attacks of tonic and clonic convulsions were also observed. The patients were very pale, although their skin was burning hot to the touch. There was also abundant sweating, sometimes limited to one-half of the body, and profuse green diarrhœa, polyuria, and

frequent micturition. In one case there was alarming failure of the heart's action, which, however, yielded to stimulation. The pupils were always dilated to the fullest extent, and this symptom was accompanied by lachrymation and visual disturbances due to paralysis of accommodation. In all the cases there was extreme dryness of the tongue and of the whole buccal cavity, with intense thirst. All the patients rapidly recovered. These cases show that, whereas the therapeutic effects of duboisine consist in a sedative and hypnotic action, generally accompanied by diminution of the secretions, the toxic effects manifest themselves in symptoms of motor and psychical excitement and convulsions, with increase in the secretions, except those of the mouth. Marandon de Montyel concludes that, as the toxic symptoms in these cases disappeared rapidly without leaving any trace, the use of duboisine in doses of 0.001 to 0.003 or even 0.004 gramme ($\frac{1}{64}$ to $\frac{1}{22}$ or $\frac{1}{16}$ grain) is in nowise dangerous to life, even when the drug causes phenomena of intoxication. With the view of avoiding such accidents, he thinks it would be well, as a general rule, to use only the neutral crystallized sulphate, and not extracts of the drug.

Empleurum Serrulatum.—An account is given by J. C. Umney $\frac{744}{\text{V.54,p.796}}$; $\frac{90}{\text{Apr.,'95}}$ of a proximate analysis of this drug, which is a well-known adulterant of the commercial varieties of barosma. An examination of barosma betulina has also been carried out for comparison. The mucilages obtained from these appear to be very closely allied. The essential oils and alcoholic extracts, however, exhibit considerable differences. Barosma-oil yields about 33 per cent. of a solid phenolic body (barosma-camphor). On the other hand, empleurum-oil appears to be mainly a ketone (methyl-nonylketone ?). The latter oil, on being freshly distilled, has a fishy odor, which is evanescent. The infusion obtained from empleurum is also characterized by this offensive odor. The alcoholic extract of barosma is almost entirely soluble in water, that of empleurum only partially so, the insoluble portion being a soft resin. The aqueous solution of the alcoholic extract, in both cases, gives glucosidal reactions. The author points out that until a therapeutic examination has been made the use of empleurum as a substitute for buchu is to be avoided.

Ephedra Vulgaris.—E. T. Grahe, of Kazan, $\frac{551}{\text{Nos.36-38,'94}}$; $\frac{673}{\text{Jan.,'95}}$ has made a number of experiments on animals with ephedra vulgaris in the laboratory of Dogiel, of Kazan. Ephedra vulgaris is a popular remedy in Poland and Russia in many diseases, and from it are obtained ephedrine and pseudo-ephedrine. The action of these alkaloids, as well as a decoction of the plant itself, was studied, and the conclusions summed up as follows: Small

quantities introduced into the stomach or veins, or under the skin, cause slight temporary increase of blood-pressure, with decrease in number of heart-beats and increase in their force. Larger quantities cause a decrease of blood-pressure, from relaxation of the vessel-walls. Distinct arhythmia occurs from irritation of the nerves and muscles of the heart. The functions of the vagi are paralyzed, the action of ephedra on the smooth muscles of the heart causing dilatation of the pupils, from increased action of the sympathetic nerves and diminished action of the oculomotor nerve, and possibly paralysis of the muscle-apparatus itself. In acute as well as chronic articular rheumatism the drug is inferior to the salicylates. (Report of Corresponding Editor Drzewiecki, Warsaw.)

Similar researches by Westernik $\frac{586}{\text{No.6,'95}}$ show that ephedra vulgaris is not an indifferent drug, although it is not very harmful. The infusion has a slight sudorific and diuretic action. In small doses it stimulates intestinal peristalsis. Its antirheumatic action is doubtful, and its cardiac action not worth mentioning. The claims made for it have been greatly exaggerated.

Ephedrine-homatropine, a new mydriatic, is considered by George F. Suker, $\frac{1}{\text{June 8,'95}}$ who states that an ideal mydriatic for diagnostic purposes would be one that would produce a maximum pupillary dilatation with a minimum disturbance of the vision. Cocaine and homatropine produce a rapid as well as a maximum dilatation; their effects, however, continue too long, often taking twenty-four to thirty hours before the same are worn off. Ephedrine-homatropine solution, however, seems to fulfill the requirements as far as an ideal diagnostic mydriatic is concerned. It produces a rather rapid dilatation, though not maximal, and its effects pass off within an hour or two. The effect of ephedrine is greatly increased by the addition of a small quantity of homatropine,—*e.g.*, a 10-per-cent. solution of ephedrine to which has been added 0.1-per-cent. solution of homatropine is more powerful than the ephedrine solution itself. In all cases in which this solution was instilled there was a greater dilatation than when the simple ephedrine solution was used, and the effects passed off as rapidly as from the ephedrine itself. The following formula gives the proportion in which it has been extensively used, both for experimental and clinical purposes:—

℞ Ephedrine hydrochlor.,	1.00
Homatropine hydrochlor.,	0.01
Aq. dest.,	10.00

This solution is perfectly clear and colorless. By the use of the combined solution the pupil is dilated from one to two milli-

metres more than by the ephedrine solution; hence, the mydriatic power of the ephedrine is greatly increased by a trifle of homatropine. The combined solution of ephedrine and homatropine does not deteriorate as rapidly as homatropine, a solution of the former three months old showing no sign of loss of action.

Ergot.—Ch. Liégeois, of Bainville-aux-Saules, [35 June 22,'95] finds that ergot is being gradually and justly replaced by other agents in the treatment of all kinds of hæmorrhage. He admits, however, that he has always found ergot injections invaluable in external hæmorrhage due to uterine inertia in labor.

Citrate of cornutine, the active principle of ergot, in its action on the uterine tissues, has given good results to A. Meisel [31 Mar.23,'95; 80 June 15] in daily doses of $\frac{1}{6}$ grain (0.0095 gramme), taken in three doses, in urethral hæmorrhage, and also vesical and uterine. According to this observer, the citrate of cornutine has produced cures in divers cases of paralytic spermatorrhœa. It acts in these cases by diminishing the medullary irritability and particularly that of the genito-spinal centre. It acts also on the genito-secretory organs, diminishing the secretion. In the majority of cases it sufficed to give this medicine for six, eight, or fourteen days to suppress completely the flow of seminal fluid. It may be given in the following manner:—

℞ Cornutine, pure, ... $\frac{1}{2}$ grain (0.03 gramme).
Argil, ... 45 grains (3.00 grammes).
Aq.,
Glyc., ... of each q. s.

M. et ft. pil. no. xx.
Sig.: Two pills to be taken three times a day (for obstetrics).

℞ Cornutine citrat., . . . $2\frac{1}{2}$ grains (0.16 gramme).
Argil, ... $1\frac{2}{3}$ drachms (6.60 grammes).
Mucil. gum. trag., . . . q. s.

M. et ft. pil. no. l.
Sig.: One pill to be taken twice daily (for spermatorrhœa).

Ludwig and Savor [8 Nos.22,23,'95] have also used cornutine with good results.

Luton, of Reims, [577 Aug. 15] praises the combination of sodium phosphate with ergot of rye in cases of melancholia, hypochondriacal neuropathies, algid conditions, adynamic depression, anæmia, and the amenorrhœa of chlorosis. It is also valuable in tuberculosis in sustaining and increasing the physical forces of the patient. The most convenient form for the use of phosphergot is the powder, given in daily doses containing 0.25 gramme (4 grains) each of sodium phosphate and fresh ergot of rye.

Ethyl-bromide.—Hennicke, working under Dreser's direction, [273 B.36,H.3,4; 90 Jan.,'96] found that after white rats had been allowed to

inhale air containing 2.3 per cent. ethyl-bromide for twenty-two to thirty minutes, death occurred during the night, although apparently normal recovery had followed the inhalation. Thinking that these ill-effects were probably due to retention of ethyl-bromide in the body, perhaps in connection with the nerve-cells, and the formation of decomposition products as a result of the normal metabolic changes occurring in the cells, Dieser instituted a series of experiments which showed that the injurious effects of ethyl-bromide inhalation are due in fact to retention of the compound in the body; this undergoes decomposition, resulting in the formation of compounds having a more toxic effect than the ethyl-bromide itself.

Eudoxin.—According to Th. Rosenheim, $\frac{4}{\text{B.32,p.648}}$; $\frac{814}{\text{Oct.1,'95}}$ eudoxin is the insoluble bismuth-salt of nosophen (tetraiodophenolphthalein), contains 52.9 per cent. of iodine and 14.5 per cent. of bismuth, and is insoluble in the ordinary solvents; it is odorless and tasteless, and, even in large quantities, it is said to be quite innocuous to the animal economy. The author has used eudoxin in 26 cases of intestinal disorders, chiefly chronic intestinal catarrh, with reported good results in most cases. The least benefit was observed in 7 cases of diarrhœa of phthisis, with tuberculosis and amyloid degeneration of the intestines. Of the remaining 19 cases, usually involving both the small and large intestines, seldom the latter only, 5 were not improved, 8 were considerably benefited, and in 11 the symptoms were either wholly or almost wholly removed by the treatment. The author administered the remedy in doses of from 0.3 to 0.5 gramme ($4\frac{1}{2}$ to $7\frac{3}{4}$ grains) three to five times daily after eating. The patients received no other treatment, excepting that their mode of living and their diet were duly regulated. The disease was in most cases severe and had been of several months' duration, other modes of treatment having previously been employed in vain. The good results obtained from the use of eudoxin are to a great part due to its antifermentative action, and to the fact that its use is not followed by any derangement of the stomach, even in the case of dyspeptics.

Europhen.—Saalfeld $\frac{116}{\text{Nov.,'95}}$; $\frac{2}{\text{Feb.15,'96}}$ gives the result of two and a half years' experience with europhen in the treatment of skin diseases. As a substitute for iodoform it has distinct advantages: (1) it does not smell; (2) it is not poisonous; (3) it is not irritating to inflamed skin. Ulcers of the leg, having usually a surrounding eczematous area, do badly with iodoform, which irritates the eczematous skin, whereas europhen soothes the burning and itching of the eczema and quickly allays the pain of the ulcer. It is particularly useful in the treatment of children on account

of the absence of irritant and toxic properties. Intertrigo, which had resisted other remedies, yielded to urophen. Soft sores treated with the powder did well, and the number of secondary suppurating buboes seemed diminished by it. Mixed with calomel it proved useful also for sores of mixed character, and definite condylomata were benefited by urophen, used as powder or as ointment. Other conditions in which it was useful were pustular eczema, folliculitis, and impetigo. After superficial operations—for example, removal of skin-tumors, circumcisions, cauterizations—it proved a valuable substitute for iodoform.

De Bulk and Walton [1160 '94; 2 May 18,'95] state that europhen is superior to iodoform in that it has a very slight agreeable odor, feeble toxicity, lightness (five times lighter). It possesses almost the antiseptic properties of iodoform, slowly frees its iodine in alkaline media, diminishes secretion, and opposes diapedesis of the white corpuscles. Clinical experience has shown its antivenereal and antisyphilitic value. It keeps wounds very dry, favors the reunion of sutured wounds and the granulation and cicatrization of open sores and cavities. The authors give twenty instances of its use. The only drawbacks noted were one case of well-marked erythema and complaints from two or three patients of slight local smarting. It strongly adheres to everything it touches,—a property which, if advantageous as regards wounds, may present inconveniences to instruments and the surgeon's hands.

Dörmer [1160 No.16,'95; 814 Oct.15] used it in eighty cases of post-operative fistulæ, ulcer, and contused and incised wounds, mixed with boric acid in the proportion of 1 to 3. It proved the most satisfactory dressing he had ever applied to ulcers of the leg. For boils, sinuses, and fresh wounds he employed a 10-per-cent. gauze.

W. H. Waugh, of Chicago, [138 July,'96] recalls the fact that the incompatibility of the iodine compounds should be recollected in prescribing europhen. Starch and the metallic salts decompose it, and, as a rule, it is advisable to administer it alone or in an oily excipient.

Ferratin.—See Iron.

Ferripyrin.—See Iron.

Fluoride of Silver.—See Silver.

Fluoride of Sodium.—See Sodium.

Formaldehyde; Formalin; Formol.—Bardet [67 Apr.15,'95; 90 June,'95] states that Formaldehyde, formalin, or formol, represented by the formula CH_2O, was discovered by Hoffmann, and hitherto has only been obtained in mixture with methyl-alcohol. It is prepared by passing a mixture of air and the vapor of methyl-alcohol into a large tube containing very fine platinum threads heated to a rather high

temperature. The liquid which condenses is formic aldehyde dissolved in methyl-alcohol. The aqueous or alcoholic solution of formol is colorless, strongly irritating to the mucous membrane, and possesses the characteristic odor of mice. The commercial solution of formol in methyl-alcohol cannot be obtained stronger than 50 in 100. Formaldehyde has the property of hardening nitrogenous substances of the nature of gelatin and fixing them. Gelatinous substances so fixed become insoluble in water, even boiling water. This property may explain the surprising antiseptic action of formaldehyde, which may in the same way fix the chitinous capsule of the bacteria and their spores, thus rendering them incapable of vital changes. From a study of the drug Bardet concludes that (1) formol is an excellent germicide, and it acts best in the state of vapor; (2) it has been little studied in its medical application, from the fact that, owing to its very marked odor and its irritant action on wounds and mucous membranes, medical men have abandoned it in favor of the less irritating antiseptics.

De Buck and Vanderlinden $\frac{674}{\text{Sept.,'94}}$ found, on subcutaneous injection, that the toxic dose for the rabbit was about 0.4 to 0.6 gramme (6 to $9\frac{1}{4}$ grains) of formaldehyde. They come to the conclusion that formol in aqueous solution 10 in 100 fulfills well certain desiderata in modern surgery, as an aseptic and antiseptic liquid, and in this strength can only exert a very slight injurious action on the tissues. Its absorption is not to be dreaded, as the toxicity is feeble.

In an histological study of the lesions produced in the organs by formol and formic acid Pilliet $\frac{73}{\text{Aug.17,'95}}$ gives the result of experiments on four dogs with subcutaneous injections of the formol of commerce (30 to 40 per cent. of formic aldehyde) and on a fifth dog with formic acid. The latter alone produced cicatrices at the point of puncture. There was observed in the kidney first an intense congestion, principally about the glomeruli, then a vacuolization of the cells, finally the elimination of plasmic fragments from the glandular cells. In the liver the lesions were also congestive and identical with those of a cardiac liver. In the stomach the border-cells were increased in size and number, and the principal cells were tumefied. In the spleen and suprarenal capsules the red corpuscles were transformed into masses of pigment. In only one case where the heart was examined was the cardiac fibre found to be affected.

Burckhard $\frac{50}{\text{B.18,H.9,10,'95}}$; $\frac{1170}{\text{Dec.}}$ concludes that formalin will destroy the bacteria in the absence of spores in a small animal in a short time; that it is not useful in larger animals, and from its slow

penetration of the larger organs is not of value in pathological anatomy, where removal of danger of infection is desired.

At a recent meeting of the Parisian Society for Dermatology and Syphilography, Poitevin [262 Nov.,'94; 121 Feb.,'95] reported upon the treatment of skin parasites with formic aldehyde, stating that formalin belongs to the safest and most reliable antiseptics, for its vapors diffuse readily even through masses of fatty matter. This property makes it specially suitable for the treatment of deeply-implanted diseased hair, and also for the disinfection of the hair-follicles filled with sebaceous matter. The application of a layer of absorbent cotton dipped in a 2-per-cent. formalin solution, and covered over with an oil-skin bandage, is well tolerated. In case of irritation of the skin, the bandage may be removed for a day.

Lamarque [827 Sept.11,'95; 673 Feb.,'96] has used formol in 1-per-cent. solution for washing out the bladder and urethra, and in 5-per-cent. solution for instillation in these localities. In acute gonorrhœa and in gonorrhœal cystitis the results have not been very encouraging; in chronic gonorrhœa they have been better. It is particularly in cases of tuberculous cystitis that the treatment has been successful. The only disadvantage is the pain caused by the drug; this, however, though intense at first, quickly ceases. Daily washings with formol solution have been effectual in stopping hæmaturia, relieving pain, and lessening frequency of micturition in cases where every other treatment had failed. Under the influence of the injections of formaldehyde in gonorrhœa Orloff [586 July 4,'95] observed a rapid disappearance of the gonococci from the discharges, while the character of the latter was changed from purulent to serous. Epididymitis was never observed, though the injections were made during the acute stage, the formaldehyde probably penetrating so deeply into the urethra that the gonococci were unable to reach the epididymis. The injections should not contain more than 5 per cent. of formaldehyde.

Philipp [34 Nov.20,'94; 2 Jan.12,'95] refers to the value of formaldehyde in disinfecting rooms and the articles contained in them. The best-known disinfectant at present is chlorine, and yet this agent does not always give satisfactory results, as it acts only in the presence of moisture. From personal experiments he finds that formaldehyde-vapor excells all other substances as a disinfectant. By using large quantities of the vapor for long periods of time a complete sterilization of the rooms and articles contained in them may be effected. Unlike chlorine, it has no detrimental effect upon such articles. Similar conclusions are reached by Van Ermengen and Sugg, of Ghent. [1184 v.1,p.141,'94]

Hinman, of Atlanta, [814 Jan.1,'95] states that inhalations of formalde-

hyde manifestly diminish the number and intensity of the paroxysms of whooping-cough and shorten the duration of the affection. To practice these inhalations, he wraps the patient up very snugly and sprays within this wrapping, for from two to twenty minutes, a 1-per-cent. formaldehyde solution, so that the atmosphere is saturated with the vapors of the medicament. These *séances* are repeated three times a day.

Galega, Galactagogues.—Galactagogues are a somewhat unsatisfactory class of drugs, and any light that can be thrown upon them is welcome. Griniewitch, $\frac{457}{\text{Mar.,'95}}$; $\frac{6}{\text{June 22}}$ who has been making a series of experiments upon them, has found that there are a few vegetable drugs which really increase the quantity of milk secreted without in any way acting detrimentally upon it, the specific gravity not being altered and the fat being even somewhat increased. The most efficient of all is a plant which, though it is said to have sudorific properties, is practically unknown in medicine,—the common goat's rue (*Galega officinalis*). An extract is prepared, and from this a tincture is made containing 6.5 per cent. of the extract. The dose of this tincture is from 50 to 100 drops, repeated five times a day. If preferred, the extract may be prescribed in 4-grain (0.25 gramme) pills, which may be taken from one to four times a day. A syrup may also be made containing 5 per cent. of the extract. The next drug in the scale is the common stinging nettle,—*Urtica urens;* a tincture containing 20 per cent. of the extract is prescribed in divided doses amounting to from 250 to 500 drops during the day, or a syrup may be employed. Cumin, anise, and fennel are also in the category, and these can be prescribed in powder,—15 grains (1 gramme) from once to five times daily.

Gallic Acid.—Gallicin, which is the methylic ether of gallic acid, is a white crystalline substance, soluble in hot water, in warm spirit, and in ether. Chemically it presents certain analogies with resorcin and with pyrogallol, and, as these substances are of use in catarrhal and some cutaneous affections, it occurred to Mellinger, of Basel, $\frac{214}{\text{p,231,'95}}$; $\frac{6}{\text{July 6}}$ to try the effect of gallicin in catarrhal conditions of the conjunctiva and in eczema of the eyelids and some other affections of the eye. The powdered substance, which is very light, is dusted into the eye or applied to the cutaneous surface by means of a brush, according to circumstances, in the same manner as calomel is employed. The application, made once or twice a day, is usually followed by a smarting sensation, which, however, soon passes off, but can be relieved by cold-water compresses or entirely prevented by the previous use of cocaine. From an experience of some 200 cases Mellinger warmly recommends this

remedy as superior in a good many eye affections to dermatol and gallinol. Conjunctivitis, whether catarrhal, suppurative, or phlyctenular, yielded to the gallicin treatment in a few days, and superficial keratitis, which had resisted the application of nitrate of silver, acetate of lead, compresses saturated with lead lotion, white-precipitate ointment, atropine drops, etc., rapidly improved under gallicin. In phlyctenular affections gallicin has the advantage of being suitable, even when there is hypersecretion, which, according to Mellinger, is a contra-indication of the employment of calomel.

Gallobromol (dibromogallic acid) has been carefully studied during the past year by Lépine, of Lyons, $^{359}_{\text{Nov.,'94}}$; $^{673}_{\text{Jan.,'95}}$ who found it to be an excellent succedaneum of the alkaline bromides, well borne by the patients, even in large amounts. The dosage is the same as the former drugs; 10 to 15 grammes (2½ to 3¾ drachms) daily can be given without inconvenience. Gallobromol consists of fine, white needles, soluble in cold water, more easily soluble in hot water, alcohol, and ether. The solution in ordinary water, which is always alkaline, turns to a reddish color, and distilled water should always be used to dissolve it.

Conrad Stein $^{169}_{\text{v.13,p.193,'95}}$; $^{814}_{\text{June 15}}$ reports 4 cases of neurasthenia, 2 of tetany, 2 of chronic alcoholism, 1 each of epilepsy, hiccough, hysteria, and several other cases of disturbed nerve-function, in which gallobromol produced beneficial effects. In doses of 1 to 3 grammes (15½ to 46 grains), three or five times daily, it acts as a sedative and antispasmodic. As an hypnotic it should be given, in powder form, in 3- or 4-gramme (46 to 62 grains) doses, taken in two portions, a short time before going to bed. In neurasthenia and nervous affections of a spastic character the author prefers the following mode of administering this drug:—

℞ Gallobromol, ... 5 grammes (77 grains).
Distilled water, ... 120 grammes (4 fluidounces).
Syrup raspberry, . . . 30 grammes (1 fluidounce).
M. Sig.: Tablespoonful every two hours.

Stein has never observed any after-effects of a serious nature from the use of gallobromol; nor was headache, general weakness, or gastric disturbances ever noticed. It seems to exert no influence on the heart or the lungs. It is said to be especially free from any depressing effect, which makes it, in this particular, superior to the alkaline bromides.

J. Quilly, of Lyons, $^{2045}_{\text{'94}}$ and Albert, of the same place, $^{2045}_{\text{'94}}$ tried gallobromol in gonorrhœa, the former using it in cases in women and the latter in men. For women a 5-per-cent. solution was injected into the bladder and the urethra swabbed out with a 20-per-cent. solution. Quilly used 20-per-cent. solutions in the

urethra during the first days of treatment in men, and 40-per-cent. afterward. Both authors obtained favorable results with the drug.

Glycerin.—Aubeau [290 Nos.13,14,'95 ; 112 June,'95] details his experiences with glycerin in various affections of the gastro-intestinal tract. He has made use of the drug with unvarying success in acute diarrhœa, infantile diarrhœa, dysentery, and chronic diarrhœa symptomatic of some gastro-intestinal affection. He found it particularly serviceable in the diarrhœa affecting members of the French army-corps in the colonies. He administered the chemically-pure glycerin in water or milk in daily doses varying from 10 to 30 minims (0.65 to 2 grammes) to an infant and from 80 to 100 minims (5.20 to 6.40 grammes) to an adult. The daily dose should be given in four equal parts. Under the influence of glycerin the appetite improves, the digestion becomes more active, the diarrhœa diminishes and finally ceases, and the patient's general health rapidly improves, the rapidity of improvement depending upon the duration and severity of the previous diarrhœa. Borated glycerin 1 to 100 was often employed. In some of the more severe cases treatment supplementary to the glycerin was also made use of. In case of ulceration of the lower bowel he used rectal injections; in cases of great prostration he used daily injections of from 5 to 10 grains (0.32 to 0.65 gramme) of artificial serum (formula of Chéron: Phosphate of sodium, 8; sulphate of sodium, 4; chloride of sodium, 2; carbolic acid, 1; distilled water, 100). He asserts that the glycerin exercises a powerful modifying influence on the gastro-intestinal mucous membrane and is of great value in such cases.

Schellenberg [226 B.49,H.2 ; 213 July,'95] reports eight cases in which toxic symptoms, apparently due to the action of glycerin, have followed the injection of iodoform suspended in glycerin. Experiments on dogs and rabbits had already shown subcutaneous injections of glycerin to be followed by nervous symptoms, paralysis of muscles, tetanus, and hæmaturia. That it has a direct destructive action on the red blood-corpuscles seems well established on the authority of several observers. Of the 8 cases 6 were in children. The only fatal case was that of a child of 4 years with tubercular coxitis. It was estimated that 60 to 65 grammes (2 to $2\frac{1}{8}$ ounces) of the fluid (10-per-cent. iodoform in glycerin) remained in the cavity after suture. On the afternoon of the same day the patient was rather badly collapsed, vomiting frequently in the evening. The urine contained albumin, blood-coloring matter, shriveled red blood-corpuscles in large numbers, and tube-casts. He died on the fifth day.

Mild symptoms were observed in one case after 10 cubic centimetres (2½ fluidrachms) of the emulsion, and severe symptoms in another after 15 cubic centimetres (3¾ fluidrachms). One child escaped with severe symptoms after the reception of 80 cubic centimetres (2½ fluidounces). Absorption is no doubt dependent on the nature of the cavity-wall, a chronic abscess with unscraped walls being apparently the safest type of cases for the use of this method, and a joint-cavity the most dangerous.

In the case of pure iodoform, previous experience points to larger doses as necessary to produce symptoms,—over 10 grammes (2½ drachms); in grave cases, 60 to 100 grammes (1¾ to 3¼ ounces). Further, the signs of renal irritation may be considered as characteristic of the glycerin cases. It is to be admitted that the mischief set up in the kidneys may well interfere with the excretion of iodine, and thus intensify the symptoms of iodine intoxication.

Glycerophosphates. — Albert Robin, of Paris, [67 May 15,30,'95; 90 Oct.,'95] has studied the therapeutic action of the glycerophosphates for the last six years, having been led to study their therapeutic value in neurasthenia by observing that certain patients eliminated by the urine relatively large quantities of phosphorus in combination with organic substances, which seemed to show an increased loss of the lecithin of the nervous system. Most of the phosphorus in the nervous system is found in the form of glycerophosphoric acid, which is one of the constituents of lecithin. The drugs containing phosphorus already in use have proved to be assimilated only with difficulty, and Robin thought that, by supplying phosphorus in organic combination in a form as nearly as possible like that in the nervous system, better results might be obtained, with, possibly, an elective action on the apparatus of innervation. His first experiments convinced him that the glycerophosphates could be used advantageously in all cases where the indications were to help failing nerve-nutrition. He made experiments on eight subjects to determine the influence of subcutaneous injections of glycerophosphates on metabolism, and in summing up the physiological action he states that the glycerophosphates, either injected subcutaneously or given by the mouth, (1) accelerate metabolism generally both as regards organic and inorganic substances; (2) they accelerate chiefly the nitrogenous exchanges, they favor the assimilation of albuminoid substances, and they increase the excretion of nitrogen; (3) they do not greatly influence the formation of uric acid, but the increase in the nitrogenous elimination often lowers the proportion of uric acid to urea; (4) they act on the sulphur metabolism, increasing the oxidation of the broken-up

sulphur products; (5) they have no marked effect on the intestinal fermentations; (6) increased elimination of chloride of sodium corresponds with the clinical fact of improved appetite; (7) probably, by favoring the assimilation of the phosphates in the food by the nervous system, they exert an economic action, saving up the combined phosphorus. This action is corroborated by the diminution in the elimination of magnesium,—the other principal mineral substance in nerve-tissue. They increase the changes of lime and those of osseous substance without influencing those of phosphorus.

The foregoing physiological considerations supply indications for the therapeutic use of the glycerophosphates. Robin does not consider them specifics for any disease. The special conditions present must be considered. A case of neurasthenia, for example, might clinically present the phenomena of excitation, with, as regards nutrition, increased nitrogen metabolism. Here the glycerophosphates would be quite contra-indicated. But if, in a case of neurasthenia, the elimination of phosphoric acid is increased in proportion to that of urea, the glycerophosphates are indicated. Similarly, chlorosis with diminished oxidation-changes demands the use of the glycerophosphates, while these are contra-indicated where the oxidation-changes are increased. Bearing these indications in mind, the glycerophosphates are useful in many conditions. Among these are some forms of chlorosis, chronic gout, diabetes, obesity, chronic phthisis, chronic Bright's disease, and phosphatic albuminuria (especially the neurasthenic variety).

In exhaustion of the nervous system, either by increased metabolic loss or by insufficient assimilation, the glycerophosphates give most striking results. For instance, in convalescence from acute diseases, such as influenza, in various forms of phosphaturia, in many cases of neurasthenia, and in muscular atrophy they are most beneficial. In the pains of locomotor ataxia, of tic, sciatica, and lumbago they have also been very successful. No good effect has been observed in mental diseases nor in general paralysis of the insane. In a case of Addison's disease the results were very encouraging, nutrition improving and the patient gaining weight, but the pigmentation of the skin did not diminish. In affections of the bones due to changes in the amount of lime, such as rickets, osteomalacia, etc., the glycerophosphates should prove of value.

Robin uses the glycerophosphates of lime, iron, sodium, magnesium, and potassium, either administered by subcutaneous injection or by the mouth. For subcutaneous injection he employs

the salts of lime, sodium, or magnesium. The lime-salt he prepares in a solution of 5 in 100, the sodium-salt in a solution of 20 in 100, injecting daily 1 to 10 cubic centimetres (15 minims to 2½ fluidrachms) of each of these solutions. The solutions must be aseptic, and prepared in small quantities at a time, as they are readily contaminated and form an excellent culture-medium for micro-organisms. The injections should be made with the usual antiseptic precautions. When used to relieve pain, it is best to apply them directly to the affected part. They are no more painful than those of morphine or simple water. By the mouth the glycerophosphates are given in the form of cachets, pills, syrups, etc. The doses given by the author are as follow:—

℞ Glycerophosphate of lime, . . .	6.00 grms. (1½ drachms).
Glycerophosphate of sodium, Glycerophosphate of potassium, Glycerophosphate of magnesium, of each	2.00 grms. (31 grains).
Glycerophosphate of iron, . . .	1.00 grm. (15½ grains).
Tincture of St. Ignatius's bean, . .	30.00 drops.
Pepsin, ...	3.00 grms. (46 grains).
Maltin, ...	1.00 grm. (15½ grains).
Tincture of kola, ...	10.00 grms. (2½ fluidrachms).
Cherry-syrup, ...	200 00 grms. (6½ fluidounces).

A tablespoonful during midday and evening meal.

Or the following cachet, given at meal-time:—

℞ Glycerophosphate of lime, . . .	0.30 grm. (4½ grains).
Glycerophosphate of sodium, Glycerophosphate of potassium, Glycerophosphate of magnesium, of each	0.10 grm. (1¾ grains).
Glycerophosphate of iron, . . .	0.05 grm. (⅘ grain).
Powder of St. Ignatius's bean, . .	0.03 grm. (½ grain).
Pepsin, ...	0.15 grm. (2¼ grains).
Maltin, ...	0.05 grm. (⅞ grain).

For the treatment of chlorosis and anæmia:—

℞ Glycerophosphate of iron, . .	0.05–0.10 grm. (⅞ to 1¾ grains).
Rhubarb-powder, ...	0.05 grm. (⅘ grain).
Extract of cinchona, ...	0.15 grm. (2¼ grains).

To make one pill. Two or three to be given daily at meal-time.

It is useful not only to associate the different glycerophosphates, but also to add drugs having a similar action on nutrition, such as kola or strychnine.

All the preceding preparations are very expensive. If necessary, they can be replaced simply, though with a less activity, by the glycerophosphate of lime in the doses indicated. To obtain good results it is important to use really active products. None of the commercial preparations of the glycerophosphates have proved completely satisfactory. Robin thinks the formulæ he has proposed are to be preferred.

In cases of convalescence following influenza Lafage [14 Mar.27,'95] has

used glycerophosphate of lime in the form of wine, syrup, and capsules, and has obtained remarkable results, the impaired strength improving in the most rapid manner. He also mentions cases in which this drug appeared to have re-established the secretion of milk in nursing women.

Grape-sugar.—Verestchagin and Nosenko [586 No.45,'94; 673 Apr.,'95] undertook a series of experiments in the clinic of Chudnowsky, at St. Petersburg, on the influence of grape-sugar on healthy persons, giving 70 grammes (2¼ ounces) of grape-sugar daily to a number of persons and arriving at the following conclusions: 1. Assimilation of nitrogen and the fat of foods is increased. 2. Metabolism of nitrogen diminished. 3. Not only was no diuretic action observed, but, on the contrary, the quantity of urine diminished. 4. The quantity of deficiently oxidated products in the urine diminished. 5. The quantity of ethereal sulphuric acid also diminished. 6. The quantity of excrement increased and the percentage of water in it also augmented. 7. The losses through the skin and lungs increased. 8. Notwithstanding these facts, the excretion of water from the body was slightly retarded. 9. Nothing positive could be determined as to the action of grape-sugar on the body-weight. The majority of those experimented on felt some fullness in the pit of the stomach and a sense of satiety. No distinct flatulence occurred. Two persons suffered from great thirst, and in two others the quantity of excrement doubled, but without diarrhœa, evacuations occurring twice daily without pain. No sugar was found in either the urine or fæces. (Report of Corresponding Editor Drzewiecki, Warsaw.)

Guaiacol.—Guaiacol has of late years been largely used to take the place of creasote in the treatment of various pathological conditions, on account of its freedom from the irritating properties often present in the latter, and of the gastric intolerance which is often manifested when creasote is administered internally.

J. M. Anders [80 Mar.15,'95] concludes that this drug is (1) an efficient local sedative, as shown by its analgesic power when applied in painful affections; (2) it is more potent when administered hypodermatically than when applied to the skin-surface; (3) it has not, in practically afebrile conditions, produced any noticeable lowering of temperature or other unpleasant effects; (4) when employed in febrile affections it may cause objectionable effects, as rigors, followed by high temperature; (5) it seems to be powerless to control inflammatory processes, particularly when acute in character.

Blaise [1153 Apr.10,'95; 2 May,'95] draws attention to the antipyretic action of guaiacol following its absorption through the skin. It appears from the experiments of Linossier and Lannois, made with crys-

tallized synthetic guaiacol (*alpha*), that this action is due to the absorption by the skin of the vapor of the medicament. The guaiacol (not more than 30 grains—2 grammes) is liquefied by gentle heat in a test-tube and painted with a small brush over the breast of the patient. The area painted is then immediately covered by adhesive gummed or rubber plaster. In fifteen minutes the taste of guaiacol will be perceived by the patient, and the temperature quickly falls from one to three degrees, slowly ascending again to its initial point in the course of five hours. The cases in which it is particularly indicated are those of pulmonary tuberculosis with febrile attacks; it can also be used in typhoid fever and erysipelas, etc. In pleurisy 45 grains (3 grammes) of guaiacol dissolved in 6 drachms (23 grammes) of tincture of iodine may be applied in the same way, two applications in the twenty-four hours.

In the course of a discussion in the Paris Société de Thérapeutique, on the external application of guaiacol in pleuritic effusions and scarlatinal nephritis, Miron Sigalea, $^{14}_{\text{Dec.19,'94}}$; $^{6}_{\text{Feb.16,'95}}$ who was one of the originators of this method of treatment, stated that he had never observed any lowering of the temperature, rendering collapse imminent, as reported by some physicians. Grellety and Ferrand, however, declared that caution was very necessary lest a collapsed condition be produced; at all events, in patients already very weak and low from the disease. On this subject Catillon's warning as to the importance of employing pure guaiacol, which has the property of being completely soluble in glycerin, should be useful. He remarks that whenever a non-crystalline guaiacol is employed no certainty can be felt that it is pure.

Bard, of Lyons, $^{3}_{\text{Aug.17,'95}}$; $^{673}_{\text{Nov.,'95}}$ states that the external application of guaiacol may be dangerous, first by the sudden fall of temperature which immediately follows the application, and, secondly, by the nervous depression produced by repeated applications. He distinguishes the antithermic effect, which is transitory, from the antipyretic effect, which is lasting. In typhoid fever the method should not be employed on account of the long duration of the disease; in erysipelas and pneumonia, on the other hand, it is very useful. In tuberculosis its effect is favorable only in a certain number of cases of interstitial granular formations without complications, such as suppuration, peripheral pneumonia, etc.

Rondot, in the discussion, stated that, applied to the skin, guaiacol causes lowering of the temperature with profuse sweating, these two effects not always being of equal intensity. It sometimes happens that two or three hours after the temperature has begun to fall it rises again to a high level; this is a reactional

pyrexia which must be taken into account. There are, indeed, cases in which the temperature, instead of going down, at once rises from one-half to one degree. Contrary to what is seen after the administration of other antipyretics, guaiacol causes polyuria. It is important to regulate the dose, as alarming hypothermia has been seen in some cases. A solution of 0.50 gramme (7¾ grains) of guaiacol in oil or glycerin should be employed. Applied to the skin the drug is useful in all febrile manifestations of tuberculosis. In fevers, both in children and in adults, it is sometimes very serviceable, especially in typhoid. The application should be accompanied by the administration of heart-tonics.

Brill [319 Nov.24,'94; 673 Feb.,'95] has investigated, in Unverricht's clinic, the effects of external applications of guaiacol, and concludes that doses of 1.5 to 3 cubic centimetres (23¼ to 46 grains) are efficient as an antipyretic, but that the untoward symptoms caused by such doses are such as to render its use undesirable. Doses of 0.75 to 1.5 cubic centimetres (11⅝ to 23¼ minims) are without such effects, and possess an antineuralgic action in a number of diseases.

Larra y Cerezo [632 Oct.25,'95; 2 Dec.28] has used external applications of guaiacol in a variety of conditions, including some of high temperature (typhoid fever, "fever of growth"). The effect has been to reduce the temperature by 2° to 3° C. (3.6° to 5.4° F.) within half an hour or so. In one case of typhoid the rapid reduction of temperature was followed by alarming symptoms of collapse. In this case 1.5 grammes (23¼ minims) of the medicament had been painted on the skin of the popliteal space and the front of the knee. The author's experience has led him to the following conclusions: Guaiacol suspended in tincture of iodine may be applied externally to the thorax as a revulsive in chronic broncho-pneumonia and as a means of promoting the absorption of pleuritic effusions; for this purpose he uses it in the proportion of 3 grammes (46 grains) to 20 grammes (5 drachms) of tincture of iodine and the same quantity of glycerin, this being painted on every day. In anasarca from anuria due to scarlatinal nephritis the same mixture may be painted on the lumbar region. As a local anæsthetic guaiacol is less dangerous than cocaine; for this purpose it should be used dissolved in water in the proportion of 20 per cent. or suspended in sterilized olive-oil (1 in 10 or 1 in 20); 0.05 to 0.10 gramme (⅞ to 1¾ grains) of either of these preparations may be injected under the skin or mucous membrane, the anæsthetic effect being produced in eight to ten minutes. Applied as an embrocation (1.5 to 2 grammes—23¼ to 31 grains—of pure guaiacol) to the skin the drug is a useful antipyretic in tuberculosis,

typhoid fever, etc. Collapse must, however, be guarded against, and the method is contra-indicated in cases of cardiac weakness and in certain cases of idiosyncrasy.

Kohos [100 Oct.30,'94] recommends applications of guaiacol over the spleen in intermittent fever where quinine is not well borne or as an adjunct to the latter drug.

S. T. Bartoszewicz, of Kharkov, [1078 Nos.23,24,'94; 2 Nov.17] has used guaiacol externally in 12 febrile cases (4 phthisis, 2 pleurisy, 2 typhoid, 1 pneumonia, 1 peliosis rheumatica, 1 intermittent), the number of experiments amounting to 65. At first he rubbed the drug with soft flannel into this or that cutaneous area about five square decimetres in extent. In spite of his using only gentle pressure, the application always gave rise to local dermatitis, with superficial ulcers and scurfing. This complication led him to abandon the frictions in favor of a novel method devised by himself. A piece of linen, three square decimetres in size, soaked with 25 or 30 drops of pure guaiacol, was applied to the forehead, back of the neck, or upper part of the chest, then covered with wax-paper fixed by a bandage, and left *in situ* for one or two hours. It was found that such compresses had exactly the same antipyretic effects as the inunction, while they caused no cutaneous irritation beyond slight redness. The principal results of the clinical research may be summarized as follows: 1. Guaiacol is an excellent antipyretic; of 65 cases, only in 5 the results were *nil* and only in 9 the temperature subsequently rose up to the primary height. The maximum effects (2.5° to 3° C.—3.7° to 5.4° F.) occurred in phthisis, the depression in a majority of cases varying between 1.2° and 1.5° C. (2.2° and 2.7° F.). 2. The drug does not give rise to collapse, even in phthisical subjects with large cavities. In these patients, however, the application is almost invariably followed in from two to four hours by perspiration and rigors. 3. Compresses are the best mode of application. 4. Chemically-pure crystalline guaiacol should be preferred to the ordinary fluid preparation, since it allows a better dosage and does not irritate the skin, even when rubbed in.

Darbouet [212 Jan.10,'95; 673 Feb.] recommends guaiacol in pultaceous angina, phlegmonous tonsillitis, etc., in which diphtheria does not play any rôle. Equal parts of glycerin and guaiacol for adults, two parts of glycerin and one of guaiacol for children. Paint affected parts four times in twenty-four hours, making the last application late at night and the first early in the morning. Fever rapidly diminishes and food can be taken without pain. Tavitian [35 Mar.30,'95; 90 May] recommends guaiacol in cases of gonorrhœal orchitis. It is free from danger, and can be conveniently applied by the patients.

There is a true absorption of guaiacol which is eliminated by the kidney, as is shown fifteen minutes after the application, by the presence of guaiacol-sulphate of potassium in the urine. The remedy is applied to the groin and the inner aspect of the thigh. It causes diminution of the pain and lowering of temperature. Crystalline guaiacol after previous melting may be applied to the affected part and to the groin by a brush; 2 or 3 grammes (31 or 46 grains) may be used each time. A guaiacol ointment may be made thus:—

℞ Guaiacol, ... 5 grammes (1¼ drachms).
Vaselin, ... 50 grammes (1⅔ ounces).

This suits delicate skins better. It is rather early to pronounce definitely on the value of the treatment; but numerous cases have been under observation in the service of Balzer.

Pietro Pucci $\frac{505}{\text{June 1,'95}}$; $\frac{2}{\text{Oct.5,'95}}$ reports the case of a man, aged 66, who had suffered from repeated attacks of ague. Inflammation of both testicles suddenly came on without any apparent cause, and this was followed within two or three days by an acute attack of malarial fever. Sulphate of quinine was given for a week without any effect on the fever, while belladonna was applied to the testicles, equally to no purpose. An ointment composed of 2 grammes (½ drachm) of guaiacol and 20 grammes (5 drachms) of vaselin was then prescribed, about 2 grammes (½ drachm) of it being painted over the scrotum thrice daily and the quinine being discontinued. The result was that the fever was almost at once subdued and the orchitis was entirely cured in a week. The immediate effect of the guaiacol was an intense burning sensation at the place where it was applied. This lasted about ten minutes, but half an hour after the application the pain was distinctly mitigated, and finally ceased on the third day of the treatment.

At a meeting of the Académie de Médecine Lucas-Championnière $\frac{827}{\text{July 31,'95}}$; $\frac{1}{\text{Aug.31}}$ related the case of a druggist who had burned his hand during a manipulation. He at once applied a solution of guaiacol and immediate relief followed. This fact led the author to make a trial of this agent to produce local anæsthesia with interstitial injections of a 1 in 10 or a 1 in 20 solution. A Pravaz syringeful of a 1 in 10 solution could easily be injected without causing toxic symptoms. The first trials were made in dental surgery and the results were very satisfactory. In general surgery no extensive operations were performed, but ablation of lupus of the scalp had been done after injections of guaiacol, and the patients had felt no pain. The action of guaiacol, according to Championnière, is more slowly produced and subsides more

gradually than that of cocaine. Its application to small abscesses has also given favorable results. It can be introduced into the system in rather large doses without causing any inconvenience; it is perfectly tolerated, and the only symptom observed was a slight local sphacelus near the gums. Three-fourths of a grain (0.045 gramme) of guaiacol in a 1 in 20 solution seemed to be sufficient; it was probable, however, that as much as 15 grains (1 gramme) could be injected without danger.

In the discussion Magitot did not share Championnière's opinion regarding the value of guaiacol as a local anæsthetic. Ferrand stated that he had frequently employed guaiacol, not by subcutaneous injections, but by thermic applications, and he had found, as a result of these applications with scarcely more than a cubic centimetre (15½ minims) of the drug, a rather marked hypothermia and a veritable syncope. These applications had produced anæsthesia, but at the same time symptoms that could not exist without danger. Laborde thought that guaiacol was an anæsthetic as well as an hypothermic, and even a very active antithermic. It was essentially a vaso-constrictor, and, for this reason, dangerous. Ferrand said that he had seen accidents produced with a cubic centimetre of guaiacol. He had employed only from ¾ grain to 1½ grains (0.045 to 0.1 gramme). With regard to the eschars, they had not been numerous and had always been very limited.

H. Dubois $^{747}_{\text{Nov.,'94}}$; $^{814}_{\text{Jan.1,'95}}$ describes two new compounds of guaiacol, —guaiacol-succinate and guaiacol-phosphate. The former may be prepared either by causing phosphorous oxychloride to act, in the theoretical proportion, upon a mixture of guaiacol and succinic acid or by causing succinyl-chloride to act upon guaiacol dissolved in aqueous solution of soda. The second method was found to be the better of the two. The formula of guaiacol-succinate is $C_4H_4O_4(C_6H_4OCH_3)_2$. It crystallizes in fine, white, glossy needles, melting at 136° C. (276.8° F.) without decomposition; insoluble in water, sparingly soluble in chloroform or acetone, freely so in ether or alcohol.

Guaiacol-phosphate is obtained by the action, at a low temperature, of phosphorous oxychloride on guaiacol dissolved in soda solution. Its formula is $PO(C_6H_4OCH_3O)_3$. It crystallizes in colorless, hard tabulæ, melting at 98° C. (208.4° F.); insoluble in water, ether, or petroleum benzin; readily soluble in chloroform, toluene, or acetone.

Hæmatoxylin.—Combemale, of Lille, $^{67}_{\text{Oct.15,'94}}$ from several experiments upon the physiological properties of hæmatoxylin, believes that it cannot replace or equal pyoktanin in the treatment of

inoperable tumors, on account of its feeble antiseptic power, its property of coagulating albumin, and its relative toxicity for the serous membranes.

Hydrobromate of Quinine.—See Quinine.

Hydrobromate of Scopolamine.—See Scopolamine.

Hydrobromic Acid.—Charles H. la Wall, of Philadelphia, [237 Jan.,'95] had occasion to examine a sample of diluted hydrobromic acid which was known to have been made by Fothergill's process. The results of the examination, he says, were so widely at variance with the requirements of the pharmacopœia that other samples were procured from various sources in order to ascertain the purity of the article as commonly found in the market. Six samples were carefully examined and tested, and not one of them fulfilled all the requirements of the pharmacopœia, and, while one or two approximated a state of purity, the remaining specimens were quite impure and showed evidence of very careless or faulty methods of manufacture. Free sulphuric acid was present in several of the samples,—an inexcusable contamination, says la Wall,—and all of them indicated a higher percentage of absolute hydrobromic acid than is allowed by the pharmacopœia.

Hydroxylamin Hydrochlorate.—Hydroxylamin is closely allied in chemical composition to ammonia, being ammonia in which one atom of H is replaced by HO. It is not used in the basic state, but as the hydrochlorate. This occurs in odorless crystals, which are freely soluble in water. It converts hæmoglobin into methæmoglobin, and is a powerful antiseptic and reducing agent. The blood of animals poisoned by it gives the reactions of nitrites. Lauder Brunton and Bokenham [565 v.8,p.398; 814 Aug.15,'95] found that the injection of the drug into the veins or peritoneal cavity of an animal caused a fall of blood-pressure exactly like that due to amyl-nitrite. The former has tested its action clinically in cases of angina pectoris (1 grain in an ounce of water). He arrives at the following conclusions: 1. The physiological action of nitrites, of nitroglycerin, and of hydroxylamin is alike: they all lower blood-pressure by dilating the peripheral vessels. 2. Hydroxylamin has a similar power of relieving pain in angina pectoris to nitrites and nitroglycerin, and may be employed in disease as a substitute for them. 3. Its action appears to last longer than nitroglycerin and, *a fortiori*, longer than that of the nitrites of amyl, propyl, or butyl, and in some cases it may have a local irritant action on the gastro-intestinal tract. To avoid this it should be given diluted.

Hymenodictionine.—Coronedi [505 July 27,'95; 2 Oct.19] has experimented on the toad with this alkaloid, which is derived from the bark of

Hymenodyction excelsum. Solutions of the drug—0.02 gramme ($\frac{1}{3}$ grain) in 100 cubic centimetres ($3\frac{1}{4}$ fluidounces) of nutritive fluid—exercise a marked effect on the heart. First there is a short phase of irregular movements and then a true diastolic arrest. The heart can easily be made to resume its natural movements by passing simple nutritive fluid through its cavities. Finally, however, the heart ceases to beat, generally in systole, as regards the ventricles, while the auricles remain flaccid. During the phase of diastolic arrest the heart, especially in the auricles, is enormously distended, and may reach double its size. Vermicular movements are observed at this phase in the ventricles. The author thinks the drug is a nerve-poison rather than a muscle-poison. There seems to be a certain analogy between its action and that of digitalis. Hymenodictionine does not appear to be a very powerful drug, as its effects could easily be removed by passing simple solutions through the heart.

Hyoscine Iodate.—See Iodic Acid.

Ichthyol.—From a series of experiments made by D. Braden Kyle, of Philadelphia, for H. A. Hare, $\frac{99}{\text{Oct. 15, '94}}$ the details of which he narrated to the New York County Medical Society, he has arrived at the conclusion that the confidence now felt in ichthyol is well placed. Its efficacy is not increased by the addition of lanolin, but is materially augmented by rubbing.

An extended discussion followed the reading of Hare's paper, opened by E. K. Dunham, who stated that he had made a short series of experiments to determine the germicidal value of ichthyol. From these he found that, while it had a slight inhibitory action on the growth of micro-organisms, it was not to be compared in this respect with a number of other agents.

P. Schmitz, of Leonore, Ill., $\frac{814}{\text{Aug. 1, '95}}$ has found ichthyol of value in eczema, urticaria, psoriasis, seborrhœa, intertrigo, and pruritus. He uses it in different combinations and proportions, incorporated with salicylic acid, zinc oxide, powdered starch, and vaselin, or with the zinc-oxide ointment. The following is a favorite combination :—

℞ Ichthyol,	$\frac{1}{2}$ to 1 drachm	(2 to 4 grammes).
Salicylic acid,	20 grains	(1.3 grammes).
Zinc oxide,	2 drachms	(8.0 grammes).
Powd. starch,	4 drachms	(16.0 grammes).
Vaselin,	1 ounce	(31.0 grammes).

M. Sig. : Apply twice daily.

In chronic eczema where the affected surface was quite large, with severe itching and hyperæmia, he used it in the following combination :—

℞ Ichthyol, ... 2 drachms (8.0 grammes).
Distilled water, ... 4 drachms (16.0 grammes).
Lanolin, . . . to make 4 ounces (124.0 grammes).
M. Sig.: Apply two or three times daily.

This relieved the itching almost immediately, and the hyperæmia subsided in a short time. In skin diseases of children he adds only from 20 minims (1.3 grammes) to ½ drachm (2 grammes) of ichthyol to 1 ounce (31 grammes) of ointment. In contusions and small wounds he applies it either in full strength or mixed in equal parts with glycerin, no untoward effects being observed.

Ichthyol-traumaticin, first lauded by Juhel-Renoy, is again brought into prominent notice by the same author and Bolognesi, $^{67}_{\text{Feb.,'95}}$; $^{697}_{\text{Jan.,'96}}$ who maintain that in about 60 per cent. of cases its action is really abortive. Three parts of ichthyol are dissolved in ten of traumaticin; the combination is a dark-brown, thick liquid, which can be applied with a brush without producing marked disagreeable effects. The application should transcend the limits of the affected part by about three-fourths of an inch, and it is always desirable in erysipelas of the face or scalp to examine the ears very carefully, and, even if they are unaffected, to surround them with a broad band of the application as a protective.

Iodic Acid.—Ruhemann, of Berlin, $^{3}_{\text{Sept.18,'95}}$; $^{1170}_{\text{Jan.,'96}}$ has ascertained that various salts formed by iodic acid with metals and alkaloids constitute remedies of decided value. Iodate of silver, administered by the mouth in doses of from 0.005 to 0.01 gramme ($\frac{1}{12}$ to $\frac{1}{6}$ grain), is an excellent astringent and intestinal antiseptic, exerting a rapidly curative effect in acute diarrhœa, chronic enteritis, and intestinal hæmorrhage. Far from exercising an unfavorable influence on the digestive function, the latter is said to be benefited by it. Iodate of lithium, in doses of 0.1 gramme (1¾ grains) has been employed in the form of hypodermatic injections in cases of uric diathesis and nephritic colic. A few injections sufficed to prevent the production of precipitates of uric acid in the urine. Iodate of mercury readily dissolves in water, in the presence of iodide of potassium. This preparation is perfectly stable for an indefinite period. Administered in hypodermatic injections, it is an excellent remedy in syphilis. Ruhemann employs a solution containing, in 10 grammes (2½ fluidrachms) of distilled water, 0.115 gramme (1¾ grains) of iodate of mercury and 0.08 gramme (1¼ grains) of iodide of potassium,—that is to say, about 0.01 gramme ($\frac{1}{6}$ grain) of the mercurial salt in a syringeful of 1 cubic centimetre (15½ minims). The injections are somewhat painful, and should be administered at intervals of two or three days. They were resorted to with success by the author in the treat-

ment of twenty-four patients at various stages of syphilis. The total number of injections required to effect a complete cure was usually twenty, more rarely thirty; but the action of the remedy was manifested from the very first injections. The dose of iodate of mercury varied between 0.01 and 0.015 gramme ($\frac{1}{6}$ and $\frac{1}{4}$ grain) per injection. The treatment was invariably well borne, and the remedy has much less tendency than other mercurial preparations to determine stomatitis, besides exerting no injurious influence on the kidneys. It may also be taken by the mouth. Iodate of quinine, administered by the mouth or hypodermatically, in doses varying from 0.05 to 1 gramme ($\frac{3}{4}$ to $15\frac{1}{2}$ grains), is said to produce a neurotonic and antineuralgic effect. Injections of this substance are but slightly painful and never result in abscess. Iodate of strychnine should not be employed in subcutaneous injections in doses exceeding 0.006 gramme ($\frac{1}{10}$ grain), as a dose of from 0.008 gramme ($\frac{1}{8}$ grain) to 0.01 gramme ($\frac{1}{6}$ grain) of this substance is liable to determine certain phenomena of transient intoxication, such as vertigo and tremor. Iodate of codeine is a sedative and analgesic, much more powerful than other salts of this alkaloid. Ruhemann has employed it with success in hypodermatic injections, in doses of from 0.03 to 0.05 gramme ($\frac{1}{2}$ to $\frac{7}{8}$ grain) for the treatment of neuralgia and spasmodic cough, and also as a substitute for morphine in morphinomania. Iodate of hyoscine is twice, or even thrice, as powerful as hydriodate or hydrobromate of hyoscine; on this account the dose administered by the mouth should not exceed 0.0005 gramme ($\frac{1}{130}$ grain); 0.0001 or 0.00015 gramme ($\frac{1}{650}$ or $\frac{1}{500}$ grain) of this substance, administered hypodermatically, usually suffices to obtain all the therapeutic effects of hyoscine. A 0.05- or 0.06-per-cent. solution of iodate of hyoscine may be employed with advantage as a mydriatic in the treatment of iritis and keratitis; its action is said to be more rapid than that of other salts of hyoscine, and it does not cause irritation of the eye. Iodate of atropine in solutions of from 0.5 to 1.5 per cent. is also said to be an excellent mydriatic. The dilatation of the pupil which it determines both supervenes and disappears more rapidly than with any other salt of atropine.

Iodide of Ethyl.—See Ethyl.

Iodides.—George Cohen, of Hull, Eng., $\frac{6}{\text{July 13,'95}}$; $\frac{673}{\text{Aug.,'95}}$ has been able in three cases to stop the catarrh following the use of 10 grains (0.65 gramme) of iodide of potassium and $\frac{1}{2}$ ounce (16 grammes) of water by adding to this mixture 5 minims (0.32 gramme) of tincture of belladonna per dose in order to reduce the salivary secretion. It also counteracts the so-called depressant action of the potassium.

J. Comby [31 July 10,'95; 121 Sept.,'95] draws attention to the fact that iodism is of exceptional occurrence in children, and, the younger the patient, the less is the liability to this accident. The immunity is presumably dependent upon the rapid elimination by the kidneys, salivary glands, and all the emunctories. He derives good results from its topical use in ringworm, alopecia circumscripta, and tinea versicolor. In ulcerative stomatitis, fungous gums, and various chronic anginas, painting with the tincture of iodine is a very efficacious procedure, attended by no inconvenience.

D. W. Montgomery, of San Francisco, Cal., [9 Dec.29,'94; 80 Mar.,'95] narrates the case of a man who took 16 grains (1 gramme) of potassium iodide per diem for sixteen days. Copious watery diarrhœa set in as soon as the drug was commenced, though the patient suffered previously from habitual slight constipation, and the diarrhœa persisted during the administration of the drug, ceasing only when it was discontinued. The patient was much reduced in weight, but quickly gained flesh when the iodide was stopped. The author states that the drug used was pure, containing no free iodine or iodates, and quotes other similar cases recorded in literature.

Iodine.—The injection of a solution of iodine subcutaneously or into the substance of a muscle has recently been practiced by some Italian surgeons for the treatment of several classes of diseased conditions with apparently much success. F. Durante, of Rome, [3 Dec.6,'94; 6 Feb.16,'95] has employed these injections in pulmonary and arthritic affections of a tuberculous character, and more recently Mennella, a military surgeon, has extended the same treatment to joint affections of a non-tuberculous nature. In two cases of hydrarthrosis of the knee of traumatic origin, where ice, tincture of iodine, blisters, and fixation, together with large doses of iodide of potassium, had been tried for a couple of months without result, periarticular hypodermatic injections of iodine caused the fluid to rapidly disappear. Again, in glandular enlargements, both in the neck and in the groin, the same treatment gave excellent results. Mennella subsequently tried iodine injections in cases of syphilitic and grave malarial cachexia and in anæmia and hydræmia in patients recovering from exhausting diseases, also in chloranæmia in young girls and in rickets in children. In all these good effects were observed. He then employed the treatment in a tedious case of broncho-pneumonia where the cough had persisted for a long time, with insufficient respiratory sounds in the left apex. After a fortnight the patient was able to resume his work. The liquid employed by Mennella is simply a 1-per-cent. solution of metallic iodine in boiled distilled water, containing just sufficient iodide of

potassium to dissolve the iodine. Of this, 15 minims (1 cubic centimetre) are injected once daily. In the case of very anæmic subjects 15 minims (1 cubic centimetre) of a 5- or 10-per-cent. solution of ammonio-citrate of iron may also be injected, either at the same time as the iodine or alternating with it. As a rule, there is but little irritation at the point of puncture, but occasionally the injections have to be suspended for two or three days because of the inflammation produced. Of course, iodism may be produced, but when this occurs it is less severe than when caused by the internal administration of iodide of potassium. The idea of injecting iodine in some of the above classes of cases is not new, though the exact form of solution may be. Messenger Bradley published an account of some cases of glandular tumors which he had successfully treated by injecting tincture of iodine into the substance of the tumor; and previously Luton had, with excellent results, injected a solution of iodic acid in goitre, in indolent adenopathic swellings of the cervical and submaxillary regions, and in a case of osteoperiostitis of a phalanx of the hand. This plan was also adopted in lymphatic tumors, with satisfactory results, by Hardman, of Blackpool.

M. Iversen, of Stoughton, Wis., [9 Apr.20,'95] has found the following method of employing iodine topically of service: Take a piece of gutta-percha tissue and give it three or more coatings of tincture of iodine; let it dry, and apply the tissue in the selected locality, with the iodine coating turned toward the skin, and secure it with a roller bandage. In this way the good results of the topical application of iodine may be secured without smarting,—a matter of importance in the case of children and weak persons. The application may be repeated daily.

Iodol.—Majocchi [673 Feb.,'96] has used iodol in about eight hundred cases of soft and hard chancre and erosion of the neck of the uterus. In soft chancre a healthy granulation was quickly obtained at the base of the ulcer, while in hard chancre the induration quickly disappeared. An important point in the treatment, and one essential to its success, is that the base of the ulcer should always be carefully cleansed, in order to prevent decomposition of the iodol. As to the mode of action of iodol, it is known that it gives out iodine, which sets up irritation in the surrounding tissues.

Ipecacuanha. — Paul and Cownley, [744 v.53,p 61 ; v.54,pp.111,373,690] publish an account of their work on the alkaloids contained in ipecacuanha. The presence of three distinct alkaloids has been indicated. The powdered drug is exhausted with alcohol, treated with basic lead acetate, and filtered; the filtrate is evaporated to dryness and the

residue so obtained dissolved in dilute H_2SO_4. After filtration the clear solution is treated with ammonia. The ammoniacal liquor is then shaken with ether, which removes the two principal alkaloids,—cephaeline and emetine. The third, existing in very small quantity, remains in the alkaline liquid, from which it may be removed by chloroform. It is a yellow crystalline body. Cephaeline and emetine are separated by a solution of caustic alkali, the former alkaloid being soluble in that liquid. Cephaeline ($C_{14}H_{20}NO_2$) is a crystalline, monacid base, forming crystalline salts. Emetine ($C_{15}H_{22}NO_2$) is a non crystalline, monacid base; it, however, forms very well defined crystalline salts. Both alkaloids in the free state are colorless, but are decomposed by light and turn yellow; their salts, on the other hand, are perfectly stable and afford a means of administering these substances unaltered. The authors suggest the use of a solution of $\frac{1}{2}$ grain (0.03 gramme) of emetine hydrochlorate in 4 ounces (125 grammes) of sherry-wine as an improved form of the official ipecacuanha-wine. The success following the use of de-emetinized ipecacuanha in the treatment of acute dysentery led them to further examine the drug with a view to isolating the tannin-like substance, "ipecacuanhic acid," first obtained and described by Willig in 1850. Their preliminary experiments prove clearly that the so-called ipecacuanhic acid is, in all probability, a mixture of a glucoside resembling saponin and a substance giving a dark-green color-reaction with $FeCl_3$. Further investigation will be required before anything definite can be said regarding the chemical nature of the constituents of ipecacuanhic acid. The authors also show that the ipecacuanhas obtained from Brazil and New Granada both contain the alkaloids cephaeline and emetine.

Robert B. Wild, $^{6}_{\text{Nov.23,'95}}$; $^{5}_{\text{Feb.,'96}}$ from his observations, sums up the action of cephaeline and emetine hydrochlorides as follows: Both possess a powerful emetic action; the emetic dose of the latter is, however, about double that of the former. In non-emetic doses the degree of nausea produced by cephaeline is also about double that produced by emetine,—*e. g.*, the intensity and duration of nausea following cephaeline are much the same as that following double the amount of emetine. Both alkaloids lower arterial tension, and little difference is apparent in small doses, but the depression produced by cephaeline is less than that produced by the larger emetic dose of emetine; cephaeline appears, therefore, to be distinctly preferable where a non-depressing emetic is desired. Both alkaloids cause contraction of the blood-vessels after destruction of the brain and spinal cord, but emetine is distinctly more active than cephaeline; 1 in 10,000 of the latter

produces little, if any, effect, while 1 in 20,000 of emetine is followed by marked contraction. On the heart no appreciable difference could be made out in his experiments; both produced slowing, weakening, and diastolic arrest of the isolated organ; recovery was easily effected when the poison was removed. It is doubtful whether the drugs in the doses administered to man could affect the heart directly, but the fact that 1 in 20,000 caused diastolic arrest in forty-six minutes renders caution necessary in giving large doses of the alkaloids. Both acted as muscle-poisons, but cephaeline had the greater toxic power, and also caused irritation of the motor nerve-endings and contracture. On the secretions, salivation was well marked whenever there was nausea. Emetine caused a flow of watery mucus from the nasal mucous membrane when a full dose was given; this was not noticed after cephaeline. It is possible that the expectorant action of ipecacuanha is due to a similar action of emetine upon the other portions of the respiratory mucous membrane. Intestinal peristalsis and a loose motion at times followed the administration of either alkaloid; there was never any marked purgation. No effect was noticed upon the secretions of the skin nor upon the amount of urine. Assuming the view that emetine is methyl-cephaeline to be correct, the chief effects of the addition of the methyl group were to reduce markedly the action of the compound upon the convulsive or vomiting centre in the medulla oblongata, and also to diminish the irritating effect on motor nerve-endings. The methyl compound had, on the other hand, a more powerful action as a local vaso-constrictor. It seems probable that in cephaeline we have a powerful and certain emetic, singularly free from depressing effects when given in doses of from $\frac{1}{12}$ to $\frac{1}{6}$ grain (0.005 to 0.01 gramme); its action is, however, too slow to prove of much service in cases of poisoning, but in all other cases where emesis is desired it appears well worthy of trial. In acute catarrhal and febrile conditions as an expectorant, and for all the uses of ipecacuanha when vomiting is not desired, emetine in small doses seems likely to prove of considerable value, and also as an emetic in large doses, from $\frac{1}{6}$ to $\frac{1}{3}$ grain (0.01 to 0.02 gramme), when a more depressing action is required. The powerful local constricting effect upon blood-vessels may also prove useful in hyperæmic and inflammatory conditions.

Iron.—In order to ascertain if inorganic iron absorbed and deposited in the liver is utilized by the organism in the formation of hæmoglobin, H. W. Waltering, of Utrecht, $^{83}_{B.21,H.2,3}$ studied the regeneration of the blood in animals after venesection, some being fed as ordinarily and others being given protosulphate of

iron or protosulphate of manganese. In the animals given iron the regeneration of the red corpuscles and hæmoglobin took place much more rapidly than in the others. From this the authors conclude that inorganic iron is more readily absorbed than has been supposed, and that deposited in the liver goes to make hæmoglobin, the superfluous portion being eliminated through the intestine.

Lapicque $\frac{410}{\text{No.2,'95}}$ finds, from experiments on healthy and diseased subjects, that the kidney is not the means of elimination of iron, and that the examination of the urine is of no value in elucidating the question of the normal disintegration of iron in the economy.

In the discussion which took place at the German Medical Congress at Munich, $\frac{6}{\text{Apr.20,'95}}$ on the therapeutic action of ferruginous compounds, Bunge, of Basel, referred to the importance of the part played by hæmoglobin in the animal economy, and said that it is very improbable that iron in the form of inorganic salts introduced into the human body by the food becomes converted into hæmoglobin by synthesis. The case is otherwise with organic ferruginous combinations such as are present in the yelk of egg in the form of nucleo-albumins, from which the hæmatogen originates. Several combinations of iron exist in milk and also in vegetables, the latter containing a considerable amount, but milk only a small quantity. This seems to be incompatible with the fact that milk contains all the elements necessary for the growth of a young organism; but this deficiency is compensated in young animals by a very large reserve stock of iron derived from the placental circulation, and when this stock is exhausted they instinctively begin to take vegetable food. The same is the case in the human subject. The iron necessary for her offspring has been in process of accumulation by the mother not only during her pregnancy, but ever since her arrival at puberty. Perhaps the appearance of chlorosis is caused by the fact that the solid tissues of a woman abstract iron from the blood without giving anything in return. This compensation can only be effected by means of organic preparations of iron, which alone are absorbed; whether they are assimilated is very doubtful, and, therefore, the best way to provide the human body with the necessary amount of iron is by the dietetic use of ferruginous vegetable products. Ferruginous drugs only act by suggestion,—the iron which is to be assimilated must be obtained from the market-garden, and not from the pharmacy.

Quincke, of Kiel, stated that he had made investigations as to the quantity of free iron in the tissues, and had found that it

increases or decreases according to the chemical qualities of the ferruginous preparations ingested. According to him, there are three varieties of iron compounds present in the human body: (1) that in the tissues; (2) the reserve stock; (3) that in the circulation. Ferruginous preparations he divides into six classes: (1) ferrocyanic combinations, which have no influence on the organism; (2) blood, which is usually held in reserve, but may be usefully given in anæmia; (3) diluted hæmoglobin; (4) citrate of iron, which does not coagulate albumin; (5) insoluble combinations, which, if subcutaneously injected, are in course of time absorbed; (6) the other oxides and suboxides of iron. These form albuminates in the stomach and intestine, and are but slightly absorbed in the normal body; perhaps more so in anæmia, where they became directly assimilated. He is persuaded of the efficacy of ferruginous preparations, especially of the suboxides and albuminates, but is not of opinion that organic compounds are preferable to inorganic, the inorganic iron being changed in the intestine into an organic combination. Sufficient experiments have not yet been made on the therapeutic value of hæmoglobin.

E. Reinert [653 Apr.25,'95] severely criticises the theories of Bunge, from the fact that his experiments were all made on animals, in whom Reinert has never observed an idiopathic chlorosis similar to that seen in the human being.

Stockman has made some fresh estimations of the amount of iron in various ordinary diets. [178 Nov.16,'95] He found that the quantity of iron in the ordinary daily diet of healthy persons with good appetite averaged from 0.008 to 0.011 gramme ($\frac{1}{8}$ to $\frac{1}{6}$ grain) a day. The convalescent diet of the Edinburgh Royal Infirmary, a sufficient maintenance for persons leading a somewhat inactive life, contained 0.006 gramme ($\frac{1}{11}$ grain) a day. In the diet of a young lady, living in the ordinary way and taking an average amount of food, 0.008 gramme ($\frac{1}{8}$ grain) was found in the daily diet, while in that of two chlorotic girls who ate very little the quantity of iron averaged 0.0026 gramme ($\frac{1}{25}$ grain) a day (four estimations). From a consideration of the amount of iron in ordinary diets Stockman is led to observe that the iron metabolism of the body must be small. Very little can be excreted, and the great bulk must be retained in the body and used over and over again. The total excreted daily by all channels is, he concludes, less than 0.006 gramme ($\frac{1}{11}$ grain) a day. When the red blood-corpuscles break down, although their pigment is to a large extent excreted in the urine and bile, a large part of their iron must be retained in the liver and spleen, where it is gradually used for the formation of new red corpuscles.

Marfori [409 v.23,p.62; 2 July 27,'96] gives the results of some new researches on the absorption of ferratin and its biological action. The different conditions of the mucous membrane of the intestine largely affect the quantity of ferratin that can be absorbed. In order that absorption may take place, before all things it is necessary that the preparation should not be decomposed in the gastro-intestinal canal, but the sulphuretted hydrogen, which is sometimes present in the intestine in large quantities, may attack the ferratin slowly and bring about its decomposition. Researches on the absorption of this substance may, therefore, give very different quantitative results according to the greater or lesser intensity of the putrefactive processes going on in the intestine. The large amount of absorption (13.7 to 41.68 per cent.) that occurs after administration of saline purgatives Marfori ascribes in part to the aseptic condition of the intestine and in part to the fact that saline purgatives cause a desquamation of the upper layers of the intestinal epithelium, and therefore expose a thinner layer of young cells through which absorption more readily takes place. When the gastro-intestinal canal is in its normal condition the absorption of ferratin is much less, according to Schmiedeberg; but since the latter's experiments render it impossible to distinguish between the iron of the ferratin and the iron introduced in the food, Marfori proceeded as follows: He administered to the animal a saline purgative and fed it solely upon milk; the lower part of the intestine was also cleared by saline enemata. About a week later ferratin was given in repeated doses. The amount absorbed varied between 11 and 30 per cent. of the amount administered. With reference to the question whether ill effects might not arise from long-continued administration of the drug, Marfori found that it was impossible to poison animals by injecting large doses into the blood; nevertheless, a man would need to take about 2¼ pounds (1 kilogramme) of ferratin in the course of a month to produce a similar result, assuming as a basis for calculation experiments on dogs. Since he would actually, however, only receive about one-twentieth of that amount, there is no danger in continued administration of the drug,—a statement confirmed by clinical experience.

Deutsch [650 Oct.24,'95] confirms, from a clinical stand-point, the experimental researches of Schmiedeberg and Marfori. It has long been known that the greater portion of the iron administered in iron salts remains in the intestine as unused ballast. Recent endeavors have all had as their object the production of a substance which shall at the same time contain a large quantity of iron and be readily absorbed and assimilated. In ferratin the iron is in con-

siderable amount (7 per cent.), and its relation to the proteids differs from that in the ordinary iron albuminates, being much more like that normally found in the liver. Researches in Schmiedeberg's laboratory have shown that ferratin plays an important part in metabolism, the amount present in the liver ranging with the state of nourishment of the organism; it is, in fact, a reserve-substance exactly comparable to glycogen. At the same time it is, in the highest degree, easy of absorption and assimilation. Deutsch finds that, in ordinary chlorosis, ferratin—with rest in bed and regulation of diet—acts as well as any other iron preparation; its power is most striking, however, in cases of gastric ulcer, in which the latter are either painful or ineffectual. Its influence is particularly seen in the increase of body-weight, which is a better diagnostic guide than the mere counting of corpuscles. Its ready assimilability is well shown by its rapid action upon cases which have not yielded to treatment with inorganic iron salts. In pernicious anæmia and allied affections ferratin is as useless as any other iron compound. It is, however, of the very greatest value in secondary anæmia. Deutsch quotes an illustrative case in which the red corpuscles had fallen to 920,000 and the hæmoglobin to 10 per cent., as the result of hæmatemesis. Six weeks' treatment with ferratin (0.5 gramme—$7\frac{3}{4}$ grains—ter die) increased the former to 3,250,000 and the latter (which always improves more slowly) to 35 per cent. If Schmiedeberg's hypothesis—that ferratin is absorbed unchanged and stored in the liver as an hæmopoietic reserve-substance—is correct, this case affords an exact converse to an experiment of Marfori, in which he found that, in the dog, repeated bleeding completely deprived the liver of its ferratin. Deutsch concludes that ferratin is at least as valuable as any other iron preparation, and points out that it is the only one of which the physiological function and fate in the organism have been established from both the experimental and the clinical side.

In von Ziemssen's clinic $\frac{34}{\text{Dec.11,'94}}$ some investigations have been made with ferratin, which was found to be easily taken and digested, though it should be given in larger doses than recommended by Schmiedeberg. Max Einhorn $\frac{71}{\text{Mar.,'95}}$ tried it in fifteen cases in which iron was indicated, and in which the stomach was too irritable to tolerate the ordinary preparations. He had not observed any digestive disturbance produced by it, but could not say that it increased the quantity of hæmoglobin more rapidly than the other preparations of iron.

Ferripyrin, a new hæmostatic, introduced by L. Hedderich, of Heidelberg, $\frac{34}{\text{No.1,'95}}$ is a combination of perchloride of iron and

antipyrin, the formula being $Fe_2Cl_3,3(C_{11}H_{12}Az_{20})$. It is a very fine orange-colored powder, soluble in water, the solution being deep red in color. It is intended as a substitute for perchloride of iron, and the indications for its use are the same. The dose for an adult is 0.5 gramme (7¾ grains) internally, mixed with an oily, sweet preparation of menthol. It is of value in gastrorrhagias. For external use and as an hæmostatic, either the powder or an 18- to 20-per-cent. solution may be employed, cotton tampons being saturated in the solution and applied to the bleeding surface. In 1- and 1½-per-cent. solutions it is recommended as an astringent in urethral blennorrhagia. Epistaxis in a case of nasal myoma was arrested by the author in a very short time by the introduction of two small tampons soaked in ferripyrin. The drug is free from the caustic effects produced by perchloride of iron. Cubasch [113 B.36,H.7 ; 814 Apr.15,'95] states that, in anæmic and chlorotic patients, especially if they complain of headache, migraine, gastralgia, or other similar nervous affections, the beneficial effects are promptly noticeable, even when the remedy is given in small doses. Ferripyrin is easily decomposed, and probably to this is due the ease with which it is absorbed by the system. Its iron is undoubtedly converted in the stomach into the assimilable combination of the alkaline albuminate, and to this the author ascribes the fact that it not only does not derange the stomach, but exerts even a beneficial influence over mild disorders of the digestive functions. Experiments made in the Throat Department of Jurasz, in Heidelberg, [116 Feb.,'95] seem to show that it is a valuable styptic and astringent, having the advantage over perchloride of iron in not acting as a costic. When applied to the mucous membrane of the nose it acts as a powerful astringent and produces a slight anæsthetic effect. It is used in the form of an 18- to 20-per-cent. solution, pledgets of cotton-wool soaked in this being applied to the bleeding parts. For gonorrhœa injections of 1½-per-cent. solution may be used. In hæmatemesis doses of 7 to 8 grains (0.45 to 0.52 gramme) should be given. According to Carmelo Calderone, [1147 Feb.,'95] ferripyrin has the same indications as perchloride of iron, with fewer objections. It appears preferable as an hæmostatic.

Izal.—Izal is said to be a by-product in the process of coke formation, and is also known as Thorncliffe disinfectant. Sheridan Delépine, of Manchester, [90 Sept.,'95 ; 673 Nov.,'95] from a series of experiments with this agent, comes to the conclusion that when diluted with 100 or even 200 parts of water it is a powerful and reliable antiseptic when contact of a sufficient length of time is secured. As an antiseptic it is more powerful than carbolic acid, and, if it be

remembered that it causes very little irritation of living tissues, that in moderate doses it is not poisonous, and that, practically speaking, it is not volatile, there can be little doubt, in his opinion, as to the immense advantages which izal possesses over carbolic acid in many directions.

Jaborandi.—See Pilocarpine.

Kerosene.—J. H. Powell $\frac{546}{v.10,p.740}$ maintains that coal-oil is possessed of valuable therapeutic properties. He has used it both for local applications and internally in a variety of diseases, and found it to give rapid and satisfactory results.

In intercostal neuralgia, painful joints and muscles of typhoid fever, sprains and bruises, small wounds, cuts, and local swellings, and in bites of poisonous insects, the following prescription has given him better satisfaction than anything he has ever tried:—

℞	Coal-oil, ...	2 fluidounces (60 grammes).
	Oil of turpentine, ...	2 fluidounces (60 grammes).
	Ammonia-water, ...	1 fluidounce (30 grammes).
	Tincture of opium, ...	1 fluidounce (30 grammes).

Externally.

In ordinary cases of nasal catarrh and of naso-pharyngeal catarrh, the following prescription, sprayed into the nose and throat with an atomizer, has been found to give quick and certain results, when accompanied by a proper constitutional treatment:—

℞	Coal-oil, ...	½ fluidounce (16 grammes).
	Oil of turpentine, ...	½ fluidounce (16 grammes).
	Water, ... to make	8 fluidounces (250 grammes).

Powell also has great faith in coal-oil as a remedy in diphtheria. Some of the worst cases he ever saw were cured by spraying coal-oil and oil of turpentine into the throat with a hand atomizer, and giving frequent small doses of calomel, quinine, and nux vomica. In follicular tonsillitis coal-oil acts like a charm, and chronic ulcers, open sores, and alveolar abscesses improve rapidly from weak local applications. In fermentative dyspepsia and catarrh of the stomach, coal-oil, administered in 10- to 15-drop doses after meals, gave better results than any other remedy.

A. Schirman $\frac{1}{Dec.7,'95}$ treated a number of cases of ulcers, especially atonic and indolent ulcers, with commercial kerosene, either pure or diluted (from 33 to 50 per cent.) with alcohol, with a small camel's hair brush or with a piece of gauze soaked in the solution. The appearance and character of the ulcers showed a change for the better; the discharge gradually diminished, and in the course of from two to four weeks after *primam intentionem* the rapidly granulating surface formed a scar without any contraction of the surrounding parts.

B. H. Brodnax, of Brodnax, Ala., [546 Sept.,'95] deodorizes it by a drop of cinnamon-oil or sassafras.

Kola.—E. B. Smith [71 No.7,'95; 5 Apr.,'95] states that the great value of kola is due to the alkaloids theobromine and caffeine and to the principle known as kolanin. As an astringent, kola had been used with marked success in cases of atonic diarrhœa, its combined astringent and tonic properties producing most satisfactory results. In the treatment of summer complaint of children it takes the place of opium, with none of its disadvantages. It aids digestion by increasing the activity of the salivary glands, augments the output of the digestive fluids, and is, therefore, beneficial in that form of dyspepsia which accompanies diarrhœa. Since it exerts a sustaining effect upon the vasomotor system, it becomes an important remedy in the treatment of children with diarrhœa when the circulation is enfeebled. When long-continued exertion is demanded and little food is obtainable, it seems to possess sustaining properties similar to those of coca. It lessens tissue-waste, as is shown by the diminished excretion of urea. Upon the circulatory system it is a tonic stimulant; the pulse is increased in strength and frequency. It is also slightly diuretic. In alcoholism it may take the place of liquor; it builds up the nervous system, enabling the patient to withstand the craving for alcoholic stimulants. It aids in overcoming the indigestion, and is beneficial in relieving the vomiting. In phthisis it lessens the cough, and is of value. In pulmonary hæmorrhage it is useful. Locally, it appears to be an astringent.

Wilcox [462 Dec.,'95] has found that kola is of value in the performance of muscular feats from the caffeine which it contains in a nascent condition. It is invaluable for the relief of the symptom of morbid somnolence, and is specially indicated in the convalescence from acute diseases, in chronic affections marked by nervous debility, and as a vehicle for the administration of cardiac stimulants.

Lactophenin.—Catarrhal jaundice following the use of lactophenin and apparently due to the drug was seen in three instances by Strauss. [116 Sept.,'95] In each case the drug was being administered for neuralgia and a dose of 1 gramme (15½ grains) was being taken four times per diem, the length of time before the jaundice appeared varying from fourteen to twenty-one days from the commencement of the treatment. The jaundice appeared to be of the ordinary catarrhal type, the stools being white and the urine bilious. Experiments on dogs showed intense congestion of the stomach and duodenum after administration of lactophenin, but no jaundice; similar congestion was observed by Lewin after the employment

of phenacetin, which has also been followed by bilious urine; it is suggested that these facts may point to catarrh of the duodenum as being the cause of the jaundice after lactophenin.

F. Kölbl [113 Oct.20,'05] reports two similar cases under his observation, both robust young persons. One of these was suffering from muscular rheumatism and had taken 1 gramme (15½ grains) of lactophenin three times daily. The pain abated somewhat, but on the sixth day the patient lost his appetite, and catarrhal icterus developed in its typical form. After suspending the remedy the icterus persisted for fully two weeks longer. In the meantime the pain increased, but yielded slowly to sodium salicylate. In the second case lactophenin was being tried in trigeminal neuralgia. After the patient had taken the remedy—1 gramme (15½ grains) three times daily—for five days icterus set in, lasting eight days. The author also calls attention to the fact that even small doses of lactophenin sometimes unexpectedly cause symptoms of collapse. Women and children are said to be especially susceptible to the effects of this remedy. He states that he has employed lactophenin in twenty cases of typhoid fever, in which disease it had previously been reported to yield good results. The remedy influenced favorably the general health of the patients. Small doses produced a certain euphoria, while appropriate doses caused a considerable fall in temperature. However, it did not appear to possess any specific action over typhoid fever nor to influence the duration and course of the disease. He questions whether the remarkable remissions in temperature sometimes produced by lactophenin are not in reality due to a state of collapse. He advises that in this disease, particularly, lactophenin be administered cautiously and only to adults.

Lactose.—This is considered by C. Gioffrea [409 v.23,p.264,'95] as one of the best of diuretics, having a marked action in cardiac and pleural affections, peritonitis, and cirrhosis. In nephritis, however, it is of almost no value. The urea and salts eliminated in twenty-four hours increase in proportion to the quantity of urine. The diuresis is produced through increased pressure and through vaso-dilator action on the kidney. The increased pressure is due first to the effect on the heart and then to the increased amount of water in the blood. The pulse diminishes in frequency following excitation of the cardiac fibre and of the bulbar moderating centre. Vaso-dilatation is due to paralysis of the vasomotors and the increase of urea to the increased elimination. The renal epithelium is never altered, even after long use of the drug.

Lantana.—N. Lugo-Vina, of Cienfuegos, [2 Oct.5,'95] draws attention to the antimalarial properties of the Brazilian lantana,—a verbena-

ceous plant which grows in the South American forests. It has long been esteemed as a specific in the "marsh fevers" by the inhabitants of Brazil, La Plata, Peru, under the name of "sacred herb." Its introduction into scientific therapeutics, about ten years since, is due to Buiza, of Lima, who gave it in the first instance to two patients, the one with acute articular rheumatism, the other with typhoid fever of ataxic form, in both cases with most satisfactory results. The active principle of the herb was separated by Negrete and named "lantanine." Buiza states that he administered the new alkaloid to thirty-two patients attacked with fevers of a different character and intensity, with the most flattering results, etc. Like quinine, it produces a moderate effect on the circulation, determining a slowness of the chemical phenomena of nutrition and usually a diminution of temperature. In larger doses it is a powerful antiperiodic, superior to the salts of quinine, as it possesses the advantage of being tolerated even by the most delicate stomachs. Intermittent fevers, rebellious to sulphate of quinine, have yielded to the administration of 2 grammes (31 grains) of lantanine. The dose is from 1 to 2 grammes (15½ to 31 grains) during the day, best given in pills of 0.10 gramme (1½ grains) each, to take 2 every two hours. Intermittent fevers may be cut short at the onset by taking 5 pills, repeated twice or thrice, at intervals of ten minutes. This treatment succeeds in 85 out of 100 cases. Lugo-Vina quotes favorable results obtained by others, and himself has exhibited the drug in other indications than those furnished by Buiza. He has obtained good results in some cases of facial neuralgia and in two cases of metrorrhagia of a marked paludal character. Five obstinate cases of intermittent fever, which did not yield to quinine or lantanine, were cured by giving the two remedies either together or alternately. Three cases of intense catarrhal fever were successfully treated with it, in one of them in alternation with antipyrin.

Lime.—See Calcium.

Lithium.—Mendelsohn, [69 Oct.10,'95] from experimental and clinical observation, finds that, while all of the lithium salts possess diuretic properties, the most active in this respect is the citrate, which has the further advantages of great solubility and comparative freedom from disagreeable taste. The acetate is second in activity. The author believes, in this connection, that chemical solvents of uric acid are not of necessity useful agents in the treatment of gout or the uric-acid diathesis.

Lithium Iodate.—See Iodic Acid.

Magnesium.—James Wood [80 Jan.15,'95] seeks to explain the purgative action of magnesium sulphate when given by hypodermatic

injection. Saline purgatives have the power of exciting more or less the glands of the intestines and of causing them to pour forth their secretions abundantly. In moderate doses magnesium sulphate accomplishes this without appreciably stimulating the peristaltic action. This being the case, a part of the fluid poured out may be re-absorbed and carry with it into the blood a quantity of the salt, and also cause the contents of the bowel to lose their fluid or semisolid consistency. This seems to explain its action when given hypodermatically and also to explain constipation after the drug has been given per rectum. In cases treated by the drug 2 or 3 grains (0.14 or 0.20 gramme) of neutral magnesium sulphate injected into the deep muscular layers of the nates in men, or into the calf of the leg in women, were successful in 70 per cent. of the cases; 20 per cent. required more than one injection, and in 10 per cent. the bowels failed to act. In nearly all cases the bowels moved within ten hours after injection.

Malakin.—F. Ottolenghi, $\frac{296}{\text{Oct.8,'95}}$ describes malakin (salicylparaphenetidin) as occurring in small, bright-yellow needles, melting at 92° C. (197.6° F.); insoluble in water; sparingly soluble in cold, but quite so in hot, alcohol; weak mineral acids decompose it into salicylaldehyde and paraphenetidin. It is decomposed into its component parts by the gastric juice as well as by the alkaline juices of the intestine; it thus acts as an antiseptic along the entire gastro-intestinal canal. It also possesses anthelmintic properties of considerable power. The author placed some lumbrici in five test-tubes, the first of which contained 100 cubic centimetres (3¼ fluidounces) of pure olive-oil; the second, 100 cubic centimetres (3¼ fluidounces) of olive-oil holding in solution 0.5 gramme (7¾ grains) of malakin; the third, 100 cubic centimetres (3¼ fluidounces) of oil with 0.5 gramme (7¾ grains) of malakin acidulated with hydrochloric acid; the fourth, oil and sodium chloride; and the fifth, a physiological solution of sodium chloride. In pure olive-oil the worms prospered even better than in the physiological salt solution; olive-oil and salt did not influence them in the least, nor did the pure malakin solution; but in the test-tube containing the acidulated malakin the worms at first became more lively and finally died. Tænia obtained from a dog killed three hours after the ingestion of malakin and put in a physiological salt solution were found dead in the latter twenty-four hours later. The author states that malakin first detaches the worms from the intestinal walls and then kills them gradually. Its mild action and slow power of absorption make it possible to administer this remedy for a protracted length of time without danger to the organism.

Robert Abernethy [36 Feb.,'95] regards the drug of value as an antipyretic when other remedies have failed. He gives the history of a case of rheumatism which seemed to yield to its influence very rapidly in doses of 15 grains (1 gramme) three times a day. Badin [31 July 31,'95] found it of value in several cases of sciatica.

Mercury.—The absence of positive information as to the excretion of mercury through the sweat-glands led Mironovitch [530 No.12,'95; 673 Nov.] to make a series of experiments upon a number of patients to whom mercury was being administered in some form. A Roman bath at 75° to 80° C. (167° to 176° F.) was used for twenty minutes to induce perspiration, and for control examination equal quantities of sweat and urine. The author concludes that the elimination of the drug through the perspiration is much greater than has hitherto been supposed. A relatively larger quantity was excreted by the sweat than by the urine, but only in cases in which mercury was introduced into the system by friction a short time before. This the author explains by the retention of the drug in the sudoriparous glands of the skin, friction causing it to be pushed into these glands before it has time to enter the blood. The quantity was the same in the sweat and urine of patients treated by injections. He expresses the opinion that when it is necessary to relieve the economy of an excess of mercury it can be effected through increased perspiration. (Report of Corresponding Editor Drzewiecki, Warsaw.)

Felix Ottolenghi, of Genoa, [2 Sept.14,'95] at a meeting of the British Medical Association reported the result of some experiments bearing on the possible conversion of subchloride into perchloride of mercury in the alimentary tube. He divided his researches into three classes: 1. Calomel followed by equal doses of chloride of sodium. 2. Calomel followed by diluted chloride of sodium (0.75 per cent.). 3. Calomel followed by mineral lemonade (hydrochloric acid, 1 gramme [15½ minims]; water, 150 grammes [4¾ fluidounces]). The first results were obtained on nine dogs (the experiments are now being continued with equal success). To these animals was given from a maximum of 0.17 gramme (2½ grains) to a minimum of 0.03 gramme (½ grain) for every kilogramme of body-weight. To 3 of the animals were given equal quantities of subchloride of mercury and common salt; to 3 calomel followed by simple mineral lemonade; to 2 the remedy, and afterward water salted with chloride of sodium (0.75 per cent.), while only 1 underwent a mixed treatment of salt and mineral lemonade. Of these, 3 dogs died on the third, seventh, and fifteenth day, respectively. In all the 9 cases diarrhœa was observed; in 4, liquid stools mixed with blood. At the necropsy the gastro-

intestinal mucosa in all cases showed marked signs of irritation, such as characterize the injection of perchloride of mercury (except when vomiting followed the injection of the remedy). In 1 case an ulcer was observed in the first portion of the intestine that had fixed itself against the psoas muscle, and in another death followed peritonitis, there being several diphtheritic ulcers all along the intestinal tube. The dogs used, although strong and young, continually lost weight, their appetite gradually decreased, and they were generally depressed. The most characteristic results were obtained with chloride of sodium; in small doses that substance always poisoned the animals.

The possibility of poisoning by the transformation of calomel into corrosive sublimate in the digestive tube has also been studied by D. Montaldi, $^{409}_{\text{v.23,p.261,'95}}$ who obtained, from experiments similar to those of Ottolenghi, results at variance with those of the latter author. He found neither clinical symptoms nor the characteristic alterations of corrosive-sublimate poisoning, and he attributes what untoward effects do appear to an impurity of the calomel used.

Finkelstein, of Charkoff, $^{57}_{\text{July 25,'95}}$ believes calomel to be an excellent diuretic and especially useful in cardiac dropsy, though the prognosis is less favorable in aortic disease. The action is greater in the absence of renal complications. The dosage must be guarded (maximum, 0.12 gramme—$1\frac{7}{8}$ grain—every two hours) and the first symptoms of mercurial poisoning closely noted. In case of a weak heart, a combination of calomel and digitalis is to be recommended. The effects of calomel are continued longer than are those of similar remedies.

William Pepper, of Philadelphia, $^{9}_{\text{Dec.5,'94}}$ points out the value of the diuretic action of calomel under certain conditions of heart-failure. In a severe case with grave cardiac disease, embolism of kidneys and spleen, and a general septic condition, the improvement was at times simply marvelous. Under the influence there was invariably a great increase in the quantity of the urine secreted, and, in consequence of this, relief of dropsy and of the general symptoms. The effect was obtained only when the dose of calomel was a large one, and it never lasted more than a week or ten days. Small doses failed entirely; the greatest daily excretion of urine —140 fluidounces (4400 cubic centimetres)—occurred under the influence of 3-grain (0.20 gramme) doses administered every six hours. It was equally evident that the drug was most active when dropsy was marked and when the bowels were kept in check. Owing partly to the quantity of morphine administered, the calomel did not appear to have any purgative tendency, but, from the comparative ease with which the patient was purged with other

remedies, this explanation is not entirely sufficient. The rapid loss of the diuretic power after several days' action was well marked, and has been so frequently observed by others that it seems an established fact. After a few days' interval the calomel acts as effectively as before. The dose should be not less than 1 grain (0.065 gramme) every three hours, and during its use the bowels should be controlled by opium, and the constant use of antiseptic mouth-washes should never be neglected.

H. Langes [34 No.48,'94] has successfully treated varicose ulcers of the legs with an ointment of the red oxide of mercury. The officinal ointment he has found to be too strong (1 part of the red oxide of mercury to 9 of vaselin); so that he mixed it with 1 to 2 parts of vaselin. The influence upon suppurating wounds was apparent in a short time; not only upon suppuration, but also upon the development of healthy granulations. The first day the patient usually complains of violent pains, which by the third have entirely or nearly disappeared; at the same time the bottom of the ulcer will assume a healthy appearance and vigorous granulation and cicatrization will follow. With the mixed preparations of the ointment reaction was less violent; but healing took place, though less rapidly. The dressing should be renewed once a day and the salve be spread upon a piece of cloth to the thickness of a knife-blade; a flannel or small bandage may be used to wrap the extremity. Rest in bed will accelerate the healing process.

E. Desesquelles [996 Dec.25,'94; 673 Feb.,'95] finds that the phenolates of mercury and some of their derivatives have an antiseptic power somewhat feebler than that of bichloride of mercury, and inferior toxic properties. They may, therefore, be of great service in certain infectious diseases, but, unfortunately, they are but slightly soluble in water and require especial care in their preparation.

Mercury Iodate.—See Iodic Acid.

Mescal Buttons.—See Anhalonium Lewinii.

Methyl-chloride.—Tsakiris, [100 No.21,'95] who suffered from alopecia, tried spraying the bald spots with chloride of methyl. In the space of a month a fine down had appeared, and the hair grew out perfectly. Since then he has successfully tried the method in another case. He expresses the belief that sudden refrigeration, followed by congestion, advantageously modifies the tissues in atonic conditions of the skin, as in alopecia. Once a week is sufficient to apply the spray, which is not painful.

Methylene-blue.—Austin Flint, of New York, [1 June 15,'95; 673 Aug.,'95] administered methylene-blue in a case of chyluria due to the filaria sanguinis hominis. The effects of the drug were decided and prompt. After the administration of 2 grains (0.13 gramme) every

four hours during the day, on March 5th, the parasites were very few at 11 P.M.; the only two found were deeply stained with blue and their movements were extremely sluggish, the urine being clear, but intensely blue. On the fourth and the seventh days no parasites were found, although the treatment had been discontinued after the first day. On the eighth day the urine became milky, and on the night of the ninth day the parasites were found in great number, but their movements were not very active. On the tenth day the treatment was resumed and continued for five days. Three days after, the blood being examined at night, a very few motionless filariæ were observed. Since that time, and up to the present writing (more than a year), the urine has been normal and the patient has been restored to perfect health. This single experience points to the possibility of benefit from methylene-blue in the treatment of other diseases due to the filaria, such as chylous collections in the peritoneal cavity and in the cavity of the tunica vaginalis testis, hæmaturia, and elephantiasis. Flint has also used methylene-blue with success in cases of malarial enlargement of the spleen rebellious to quinine, in doses of 1 to 1½ grains (0.065 to 0.1 gramme) in capsules two or three times daily, about 30 grains (2 grammes) of powdered nutmeg being given with each dose to guard against bladder irritation. Having used this remedy for seven or eight days, he discontinues it and substitutes quinine, with excellent results.

Robinson, of New York, $^{1}_{\text{Aug.3,'95}}$ reaches the following conclusions in regard to the employment of methylene-blue: In a case of specific urethritis in a very early stage—the first day—the use of methylene-blue, by its direct action on the gonococci, may do good, though there is danger of strangury and general toxic manifestations; but as soon as the gonococci have penetrated beneath the epithelial layer of the urethral mucosa, methylene-blue can do nothing but harm. The author used it in three cases of intermittent fever with fair results, but believes that its action is certainly much inferior to that of quinine and arsenic. He agrees, with Laveran, that, used internally, methylene-blue is good only for one purpose,—to color the urine blue. It is an excellent coloring agent, though, for the plasmodia malariæ and the gonococci Neisseri, and is useful when employed externally in cancerous and tuberculous affections.

Lemoine, of Lille, $^{14}_{\text{Apr.21,'95}}$ has used methylene-blue as an analgesic with great success in neuralgia, sciatica, and locomotor ataxy. He gives 0.30 gramme (4½ grains) a day. It has been successfully used by J. E. Black, of Memphis, $^{74}_{\text{Dec.,'95}}$ in the treatment of sciatica.

Alexïeffsky and Borissovsky [586 No.49,'95] repeated the experiments of Yakovleff, who claimed that methylene-blue had distinct diuretic properties, and find that these properties are feeble and insignificant.

Morphine.—See opium.

Myrtillus.—Winternitz, of Vienna, [3 Mar.,'95; 1170 July] has obtained excellent results in cases of eczema from the application of a decoction of blueberries. Four years ago he recommended the use of myrtillus in the treatment of leucoplakia buccalis, fissures of the tongue, and chronic gonorrhœa. Heretofore this remedy has not been much used, because it readily undergoes fermentation; but by evaporation of the decoction of myrtillus until it becomes of a syrupy consistency a substance is obtained which keeps for a long time if a small quantity of tincture of myrrh or salicylic acid be added to it. This extract possesses the property of staining the superficial layers of the skin a bright tint, and, if it is applied to an eczematous patch, recovery is obtained within a few days. He has employed the decoction of myrtillus with success in all forms of eczema, even in refractory cases of old standing. The affected parts are covered with a coating of the syrupy extract of myrtillus, to which is applied a thin layer of cotton-wool, and on the following day these parts are washed with water containing salt in the proportion of 3 to 500. In urticaria the itching disappears in a short time after the application of this remedy. In a case of burn of the second degree the application of this decoction of blueberries speedily relieved the pain and brought about rapid recovery.

Naphthol.—See Asaprol and Bismuth.

Nettle.—See Galega.

Neurodin.—This analgesic, introduced in 1893 by von Mering, was tried by Ugo Lippi [921 Feb.15,'95; 673 May] in fourteen cases of neuralgia and pains of various kinds. He used doses of 0.5 to 3 grammes ($7\frac{3}{4}$ to 46 grains), and found that these could be repeated several times daily without causing any untoward effect except occasional diarrhœa and, in rare instances, a lessening in the number of heart-beats. It was effective in soothing pain, whether due to neuralgia or to some organic affection; but he states that the analgesic action is not so strong as that of other similar remedies, while the fact that it is not readily soluble in ordinary vehicles renders it inconvenient for general use.

Nickel.—Boulatov, of St. Petersburg, [2043 '95] has studied the effect of the salts of nickel on cold-blooded animals and mammals. In the frog it produced a passing excitement, then a paralysis of the central nervous system; respiration, at first impeded, was

finally arrested, with stoppage of the heart. In the dog ingestion of the stomach produced no effect except in very large doses, whereas intra-venous injection of 0.01 gramme ($\frac{1}{6}$ grain) per kilogramme ($2\frac{1}{5}$ pounds) of body-weight caused death, and an injection of 0.005 gramme ($\frac{1}{12}$ grain) produced various digestive disturbances, a weakening of the blood-pressure, and especially a fall of temperature, by exciting the cutaneous vaso-constrictors or by the direct action of the salts of nickel on cellular vitality.

Nicotine. — Grasset and Parentz [35 No.12,'96] have studied nicotine oxalate, which is eight times less toxic than nicotine. The constant symptoms caused by its administration were contraction of the pupils, paralysis and convulsions, salivation, cerebral anæmia, peripheral vaso-constriction, and cardiac asystole. By acquiring a tolerance animals could bear a dose larger than the ordinarily toxic one.

Nitrate of Silver.—See Silver.

Nitrates.—J. B. Bradbury [6 No.3768, p.1205,'95] has made a study of erythrol and mannitol nitrates, as well as of dextrose, levulose, and saccharose nitrates. These are less soluble than other nitrates, and therefore have a correspondingly weaker effect, but their action is more prolonged. Erythol and mannitol nitrates are indicated chiefly when the heart is laboring under increased work imposed upon it by contracted arteries. The difficulty hitherto has been not so much to reduce arterial tension as to keep it constantly below a certain level. Both nitroglycerin and sodium nitrate have been used, but their administration has been attended with some inconvenience, notably that their action is so transient that the doses must be repeated at two hours' intervals in order to produce continuous low tension. On the other hand, with the substances named, the tension is not brought so low, but is kept reduced for a longer time and the pressure is less liable to fluctuation; further, they are free from poisonous properties,—a quality readily explained by their slight solubility. The conditions under which these remedies may be used are cardiac pain, chronic Bright's disease, aneurism, Raynaud's disease, dyspnœa, headache, nervous diseases, as migraine and neuralgia, and various forms of poisoning, as from opium and coal-gas, vomiting from pregnancy and seasickness, lienteric diarrhœa, diabetes mellitus, and hysterical paralyses. The dose of the solid organic nitrate may be taken as 1 grain (0.065 gramme), but more may be given if necessary in pill, tablet, or in alcoholic solution. The latter is preferred; of the erythrol nitrate, 1 to 60 aqueous solution, in 1-drachm (4 grammes) doses. Of the mannitol nitrate, 1 to 100 aqueous solution, in dose of from $1\frac{1}{2}$ to 2 drachms (6 to 8

grammes). Both solutions, thus made, are stable and free from irritating properties.

Nitrites.—Petrone [589 Aug.31,'95; 2 Nov.23] has found that rabbits inoculated subdurally with rabies lived as long again after hypodermatic injections of sodium nitrite. The author tried the same treatment in two cases of syphilis, with good results. The first case was a man suffering from marked malarial cachexia and enlarged spleen, who contracted syphilis in December, 1893. During the early manifestations he took mercury and potassium iodide, but as soon as the symptoms disappeared he ceased taking medicine. In March, 1894, he suffered from marked nocturnal osteocopic pains, periostitis of the skull and tibia, and abundant papulopustular syphilodermia. From 5 to 10 grains (0.32 to 0.65 gramme) of sodium nitrite, rapidly increased to 50 grains (3.2 grammes), were injected daily in two doses. The nocturnal pains were relieved on the second day, and the rash and periostitis gradually disappeared; so that at the end of a month the patient was able to work, and in much better health in every way. The second case was that of a woman, aged 22, suffering from hereditary syphilis, which had first developed ten years before, and been treated with potassium iodide and mercury. When admitted to hospital, in April, 1895, she presented loss of bony substance over an area equal in size to a five-franc piece on the right frontal bone and on the left parietal, confluent ulcerating gummata in the left dorsal region, gummata on the thigh, and very extensive ulceration of the left leg. The same treatment—50 grains (3.2 grammes) of sodium nitrite in two divided doses daily—was carried out as in the first case, and the ulcers merely cleansed with boric solution. After twenty-six days the sores were almost all healed. Treatment was then interrupted for a few days by an attack of acute bronchitis. On resuming the injections the patient was cured in another ten days and her general health much improved. No local troubles or general symptoms followed the injections. The solutions should not be more concentrated than 2 or 3 per cent.

Nitroglycerin.—Mikhalkine, of Nijni-Novgorod, [24 Apr.21,'95; 242 Nov.] had occasion to test the antineuralgic properties of trinitrin (nitroglycerin) in three cases of inveterate sciatica which showed themselves absolutely rebellious to such remedies as antipyrin, phenacetin, acetanilid, chloral hydrate, the bromides, and other analogous preparations. Under the influence of nitroglycerin two cases were radically cured of their sciatica, and in the third case marked improvement took place. The trinitrin was administered either in the form of a 1-per-cent. solution in alcohol, of which the patients took 3 drops daily, or in the following mixture:—

℞ One-per-cent. alcoholic sol. trinitrin, . 5.0 grms. (1¼ fluidrachms).
Tr. capsici, ... 7.5 grms. (1⅞ fluidrachms).
Aq. menth., ... 15.0 grms. (3¾ fluidrachms).

Dose: Five to ten drops three times daily.

A case of singultus was successfully treated with nitroglycerin by E. Griswold, of Sharon, Pa., $\frac{61}{\text{Oct.27,'94}}$ pills containing $\frac{1}{150}$ grain (0.00043 gramme) being given until $\frac{1}{30}$ grain (0.002 gramme) had been administered, when the symptoms ceased.

Nosophen.—This is a new iodoform substitute, an organic iodine compound,—tetra-iod-phenol-phthalein,—having the formula

$$(C_6H_2I_2OH)_2C<\begin{matrix}C_6H_4CO\\O\text{——}|\end{matrix}$$

It is described as a light-yellow, odorless, and tasteless powder, insoluble in water and acids, dissolving only slightly in alcohol, but more readily in ether and chloroform; melting at 255° C. (491° F.) with the elimination of iodine. It has the character of weak acids, forming permanent salts with bases, of which the alkali salts are soluble in water and the heavy metal salts insoluble. The proportion of iodine is 60 per cent., and exceptionally in molecular combination, resisting dissolution under ordinary circumstances and particularly in the human organism, whether internally or subcutaneously applied. Therapeutically it is valuable for its bactericidal and desiccative properties; it is not locally irritant nor toxic; 4 to 8 grains (0.26 to 0.52 gramme) have been administered without causing symptoms in stomach or intestine. Seifert $\frac{8}{\text{No.12,'95}}$ employed the product principally for affections of the pituitary membrane, obtaining the best results with insufflations in rhinitis hypersecretoria and less prominent, but still good, effects in rhinitis acuta. He also successfully employed nosophen insufflations as after-treatment to prevent formation of fibrinous exudations after chromic- and trichloracetic-acid cauterizations. Satisfactory results were also noted in balanoposthitis and ulcus molle; in the latter it is necessary to prevent formation of crust and consequent retention of the secretions; and, therefore, the remedy is only dusted on in a thin layer. Seifert's method is to clean the sore, cauterize it with liq. ferri sesquichlor., and then dust nosophen over it and cover with a thin layer of cotton.

Ferd. C. Valentine $\frac{245}{\text{Oct.,'95}}$ has had frequent occasion to use nosophen, and states that an extensive periurethral abscess, opened by Arthur Lewin, of Berlin, was strewn with nosophen (called at the time iodophen) and healed completely in twenty-four hours. Extensive chancroids of the labia majora were strewn

with nosophen and healed in five days. Ernst S. Feibes, of Aix-la-Chapelle, has had similar results in genito-urinary practice. The bactericidal action of nosophen is shown in cystitis. Washing the bladder with a 4-per-cent. solution clears the urine in a few days, facilitating such further treatment as each individual case may require.

The drug is recommended by Th. Koll, of Aachen, $^{4}_{\text{No.29,'95}}$ as valuable in disorders of the nasal cavities, and by Rosenheim, of Berlin, $^{4}_{\text{No.30,'95}}$ as of use in intestinal affections, its antiseptic action being marked in both classes of diseases.

Nuclein.—See Animal Extracts.

Nut-gall.—According to S. Grose, $^{3}_{\text{v.15,p.66,'95}}$; $^{814}_{\text{June 15,'95}}$ the application of an ointment composed of 1 part of powdered nut-gall and 8 of borated vaselin gives excellent results in the treatment of extensive burns. It quickly diminishes the abundant suppuration which appears on the surface of the wound, deodorizes this secretion, prevents excessive granulation and the subsequent cicatricial retraction. The application of this ointment by a tight bandage of absorbent cotton is said to produce as good results as does silver nitrate, without the inconvenience and danger attending the use of the latter.

Onions.—Stawski $^{2043}_{\text{'95}}$; $^{673}_{\text{July,'95}}$ has studied the effect of onions in the clinic of Pasternacki by experimenting on 8 healthy persons from 22 to 38 years of age. Each experiment lasted six days, and for three days previously the person was under control. The amount administered was from 60 to 100 grammes (1¾ to 3½ ounces). Raw onions, to the amount of 100 grammes (3½ ounces) taken with a mixed diet, did not show any distinct diuretic properties, and did not affect perspiration. The weight of the body in 5 out of the 8 cases increased during the experiments as well as afterward. The quantity of excrements increased, this increase continuing even after the experiments in 6 out of the 8 cases. Raw onions increase the appetite, produce vigor, and afterward cause temporary inclination to somnolence. They also cause thirst and eructation, increased peristalsis, soften excrement, and favor its easy evacuation.

Opium.—The opinions expressed by classical writers or in special papers on the subject of the arterial pressure during morphinization being rather conflicting, Guinard, $^{927}_{\text{July 19,26,'95}}$; $^{90}_{\text{Oct.,'95}}$ of Lyons, has thought it of interest to take up the subject experimentally. The prevailing opinion as to pressure in cases of narcotized animals is that morphine at first produces a slight increase of tension, but during the phase of narcosis a fall of arterial pressure. Guinard has arrived at the same conclusion, but mentions

some peculiarities. The fall of pressure may be immediate when the morphine is injected directly into a vein, which led Calvet to deny the first effects of increased tension. The stage of hypertension is, however, the rule after hypodermatic injection, although it may vary in time of duration and in amount. The fall of pressure is never very great, and Guinard's tracings show that the difference rarely exceeded 26 to 29 millimetres; it was often much less. This arises from two causes: (1) a slight difficulty of the blood-flow at the periphery, and (2) the increased energy of the cardiac contractions, appearing usually after the relaxation of the vessels which determine the hypotension; consequently, the pressure, after being slightly raised and then falling below the normal, rises slightly when the cardiac modifications appear to the level which it will retain during the whole phase of sleep.

Guinard has also studied graphically the changes in pressure in the horse, ox, goat, sheep, pig, and cat, non-narcotized. In all these animals, without exception, increased arterial tension is produced,—at least, when the limits of therapeutic doses are not exceeded. This vaso-constriction and hypertension is produced, no matter how the drug is administered, and the manometric curve falls only toward the end of the action, or consequent to the use of very large doses, and in this case the result is retarded according as the resistance of the animals to morphine is greater. The increase in arterial pressure produced by morphine in these animals is always very marked. The main difference was 20 to 25 minims in the horse, 10 to 15 minims in the ox, 10 minims in the pig, 45 to 60 minims in the goat. Goats present the arterial hypertension most markedly. In one experiment Guinard found the manometer rise from 125 to 186 minims under the influence of 4.80 grammes (75 grains) of morphine injected into the jugular vein.

De Boeck and Verhoogen have stated that in the dog the speed of the cerebral blood-flow is little modified by an injection of 0.01 to 0.02 gramme ($\frac{1}{6}$ to $\frac{1}{3}$ grain) of morphine per kilogramme ($2\frac{1}{5}$ pounds). Stcherbach declares, on the contrary, that there is a diminution of the quantity of blood flowing to the brain. Kaufmann speaks of a slowing of the capillary circulation with stasis.

Guinard finds a diminution in the speed of the carotid current in animals like the dog narcotized by morphine. As at the same time there is moderate hypotension and increased cardiac energy, peripheric congestion and blood-stasis in the arterioles and relaxed capillaries may readily be explained. In animals excited by morphine, particularly the horse, immediately after an injection of this

alkaloid the systolic and diastolic speed diminish, but when the action of the drug reaches the full amount the systolic speed increases, owing to the stronger beats of the heart, but the diastolic speed is always less than the normal.

To sum up, while in the dog vascular tension is slightly lowered and the speed of the blood-current diminished, in spite of a more energetic action of the heart, in animals excited by morphine the drug still produces a slowing of the blood-stream, but by an inverse mechanism,—by energetic vaso-constriction and increased peripheral resistance. As regards the relation existing between the circulatory modifications and the morphinic sleep, in animals narcotized by morphine, there is vaso-dilatation, vascular hypotension, and congestion; while, in animals not capable of being narcotized by morphine, vaso-constriction, arterial hypertension, and anæmia are observed. Guinard, however, agrees with other writers that the circulatory modifications have not a causal relation to the morphinic sleep. If the vasomotors are excited in certain animals and depressed in others, it is by an action analogous to that on the encephalic centres, which either excites or narcotizes the animals. The circulatory modifications may influence the direct action of the drug on the psychosensory and psychomotor centres, but they are not the chief and exclusive cause of the difference in the effects.

The same author, $\frac{211}{\text{Sept. 8, '95}}$; $\frac{673}{\text{Oct., '95}}$ from a series of experiments on cats and dogs, concludes that the nausea which sometimes precedes the hypnotic effects of morphine is produced in the same manner as that caused by apomorphine,—that is, by a direct action upon the nausea-centres of the bulb, exciting before narcotizing them. When very large doses are injected the narcotic effect is produced first, thus explaining why vomiting occurs more freely when small quantities are given. The fact that such vomiting is not constant and varies in different persons the author explains by an individual variation in the susceptibility of the nerve-centres and a greater or less power of resistance. The association of atropine with morphine to prevent vomiting from the latter drug is not always successful in animals, and its action is a synergic rather than an antagonistic one.

In the discussion Soulier insisted upon the value of atropine in combating nausea due to morphine injections in practice, and Icard stated that he had not for years used a solution of morphine that did not contain atropine. The only danger is that the patient is exposed to intoxication by atropine if the number of injections is increased.

A. Popoff, $\frac{673}{\text{Nov.}}$ in an inaugural dissertation at St. Petersburg,

concludes, from experiments on thirty-eight dogs, that morphine causes a gradual, though slight, increase of the white corpuscles without previously diminishing them. For this reason it is a suitable hypnotic for animals. The action of chloroform is similar, but more pronounced. Diminution of the white corpuscles begins only on the third day, the number of leucocytes of all shapes increasing until the third day, when the number of multinuclear cells diminishes and that of the young cells increases. Under inhalations of chloroform the activity of the white corpuscles is disturbed and slackened, but on awakening from narcosis the number is increased. Transfusion of blood from a narcotized into a normal animal always increases the number of white corpuscles in the latter. (Report of Corresponding Editor Drzewiecki, Warsaw.)

At a meeting of the Paris Obstetrical and Gynæcological Society, Bureau $\frac{1}{\text{Aug.17,'95}}$ mentioned the case of a woman who, having been addicted to the use of morphine for about seven years, had got to the point of taking 15 grains (1 gramme) a day when she was delivered of a child. When the umbilical cord was cut Bureau caught the blood that escaped from the umbilical vessels and the placenta, and on chemical analysis it was found to contain morphine.

Floyd M. Crandall, of New York, $\frac{40}{\text{Nov.,'94}}$ in discussing the use of opium in the diseases of children, states that the dose varies greatly and no positive rules can be given. It is comparatively small, especially for children under 8 months. As a general rule, 1 minim (0.065 gramme) of paregoric (equivalent to 2 drops) may be given for each month of the baby's age. At 1 year $\frac{3}{4}$ minim (0.045 cubic centimetre) of the deodorized tincture is a full dose, or $\frac{3}{4}$ grain (0.045 gramme) of Dover's powder. Morphia is rarely indicated at this age. The dose should not exceed $\frac{1}{120}$ grain (0.00054 gramme) when given hypodermatically. The initial dose of opium should be small, and its effect should be noted before it is repeated.

In a clinical lecture upon some of the uses of opium, which he regards as a too much neglected remedy, W. B. Cheadle, of London, $\frac{1077}{\text{Sept.26,'94}}$; $\frac{673}{\text{Jan.,'95}}$ speaks a word of caution as to its use in Bright's disease, where profound and fatal coma may be produced, especially by its hypodermatic use. In cases of fatty or largely-dilated heart the hypodermatic injection of morphia in full dose is attended with risk. Children are susceptible to its influence in inverse proportion to their age. He has seen fatal coma occur in a child of 6 months after a rectal injection of $\frac{1}{2}$ drachm (2 grammes) of tincture of opium, and complete narcosis in a child of 14 months from $2\frac{1}{2}$ grains (0.16 gramme) of Dover's powder. Another fact,

usually ignored, should also be remembered,—viz., that, if opium has been given freely, its sudden stoppage causes great nervous depression, often severe vomiting and diarrhœa. This is the effect in cases of the opium habit, and Cheadle has seen the same results follow the discontinuance of the drug in patients in which it had been given systematically. In exophthalmic goitre, for example, in which its use produces excellent effects, sudden discontinuance would be most disastrous. In these cases it is wise to let the patient down slowly and safely by gradual reduction.

Organotherapeutics.—See Animal Extracts.

Oxalic Acid.—H. C. Bloom [9 Sept.29,'94] has made a second report on the value of oxalic acid as an emmenagogue. Since his previous paper he has used the drug in upward of one hundred cases of amenorrhœa, and, while it occasionally failed him, his experience still leads him to regard it as the surest and safest of emmenagogues. He also thinks it reliable as an oxytocic under certain conditions. In chlorosis additional therapeutic measures are necessary for the establishment of a better condition in the blood. Frequently, however, even when the anæmia disappears, the amenorrhœa may persist. In such cases the combination of the ferruginous preparation with oxalic acid has yielded, in his experience, the best results. His formula is as follows:—

℞ Peptonate of iron, ...	12 grains (0.78 gramme).
Peptonate of manganese, . . .	2 grains (0.13 gramme).
Oxalic acid, ...	2 grains (0.13 gramme).
Alcohol, ...	3 fld. dr. (12.00 grammes).
Water, sufficient quantity to make .	4 fld. oz. (125.00 grammes).

Sig.: 2 drachms (8 grammes) three times a day.

Oxygen.—W. T. Baird, of Dallas, Texas, [673 Jan.,'95] gives clinical histories showing the striking benefit to be derived from the use of oxygen as an inhalation in several forms of disease, and especially in pneumonia. His position was sustained by all the members taking part in the discussion, one of them, who advocated the extemporaneous preparation of oxygen, citing the case of a child who had inhaled about four hundred and eighty gallons of the gas in about seventy-two hours. So decided had been the relief in this case that the boy would awake himself now and then and apply the tube to his face.

G. J. Preston, of Baltimore, [61 June 15,'95; 673 Aug.,'95] shows, by a series of experiments on animals, that the percentage of hæmoglobin in the blood can be largely increased by the inhalation of pure oxygen; and from this fact he urges a full and scientific trial of the method in pneumonia, acute bronchitis, pulmonary emphysema, pulmonary tuberculosis, and diseases obstructing the air-passages.

V. Romaro [1 Nov.24,'94] has found oxygen-inhalation very beneficial as an adjuvant in the treatment of so-called functional neurosis of a convulsive type. These inhalations diminish the intensity and duration, and sometimes abort the paroxysm, of a convulsive attack. Employed systematically, they gradually reduce the number of attacks, improve the general health, and may effect complete recovery. The therapeutic effects of these inhalations are said to be due to the fact that the oxygen counteracts the asphyxial state of the tissues and destroys the ptomaines, the accumulation of which in the organism is often responsible for the appearance of convulsive paroxysms.

Macalister [2 Dec.7,'95] related to the Liverpool Medical Institution two cases in which oxygen had proved very serviceable. One of them was a case of uræmic coma associated with lividity; the patient almost at once gained consciousness when the oxygen was administered. The other was a case of morphine poisoning, and artificial respiration was necessary until the gas was given, when the respiratory function was restored and the cyanosis of the face, lips, and extremities was greatly relieved. In both cases recovery was complete.

Pearson [6 Dec.22,'94] read notes before the Sheffield Medico-Chirurgical Society of the successful treatment of a case of uræmic asphyxia by the inhalation of oxygen. The patient was a woman, 41 years of age, with a dry skin and general anasarca, who had been unable to lie down for several days, and who had not passed daily more than one or two teaspoonfuls of urine for a week. When the oxygen was administered she appeared to be dying from asphyxia. The result was immediately very good. A steam-bath was then given, and $\frac{1}{3}$ grain (0.02 gramme) of pilocarpine injected hypodermatically. In a few minutes saliva began to flow and the patient broke out into profuse perspiration. On the following day six ounces of urine were drawn off by the catheter; the specific gravity was 1035, it was one-fourth albumin, and there was a large number of tube-casts. Thirty ounces were passed on the second day, and six pints daily during the following three days. The urine was normal and the patient was down-stairs a week afterward.

Paul Petit [211 Jan.5,'96; 673 Feb.,'96] calls attention to the triple property possessed by oxygenated water of hastening the precipitation of fibrin, of exciting the smooth fibres, and of injuring the tissues but slightly or not at all. For these reasons he concludes that it must be an excellent hæmostatic for external use. If, in a case of intra-uterine hæmorrhage due to fungous metritis or to interstitial fibroid, a tent covered with cotton dipped in oxy-

genated water at 12 volumes be introduced into the fundus, an abundant moss will be seen to form, becoming confluent at the external orifice, while the organ contracts on the tent and the hæmorrhage is immediately arrested. There is no pain nor modification of tissues, and the hæmostasis persists long enough to enable the anæmic patient to recover strength and to support a radical operation later on if necessary.

James W. Russell, $^{32}_{\text{Jan.,'95}}$ in a paper on the use of oxygen-inhalations, states that the amount of oxygen which a given quantity of hæmoglobin can take up is fixed and definite. The hæmoglobin of arterial blood ordinarily is almost saturated with oxygen. Under high pressure only a very small additional amount is taken up. Therefore, under ordinary pressure inhalations of oxygen are of no value. In cases of asphyxia, however, the pulmonary blood is greatly deoxygenated and the air-vesicles filled with carbonic-acid gas. In these cases, too, oxygen, as proved by experiment and practical experience in coal-mines, is not one whit more rapid in its restoring action than atmospheric air similarly applied. The theoretical objection has been raised that an increased amount of oxygen meant increased oxidation of tissues and a consequent accumulation of carbonic acid. As it is impossible to overcharge the blood with oxygen, this objection does not hold good. In cases of cardiac, hæmic, and pulmonary dyspnœa it would seem of importance to increase the proportion of oxgen in the air inhaled. Experience shows, however, that in the dyspnœa of pneumonia it has no effect. In cases of cardiac dyspnœa the difficult breathing is not due to the insufficiency of oxygen, but rather to the inability of the circulation to get at it. Concerning the use of oxygen in anæmia, the author doubts the good results published. If the atmospheric air can saturate the hæmoglobin of the blood in health, surely it is still more able to do so with a diminished amount of hæmoglobin.

The author used the gas intermittently in cases of pneumonia, acute and chronic bronchitis, phthisis, mitral disease, aortic disease, aneurism, acute nephritis with uræmia, and pernicious anæmia. In none of them was he satisfied that any effect, good or bad, was produced. There was no change noticed in the pulse- and respiration- rate, nor was the dyspnœa at all relieved. Patients expressed themselves as no more comfortable.

Papain.—Lasniée $^{73}_{\text{Mar.16,'95}}$ draws attention to papain as a digestive ferment of great value in the treatment of most cases of disordered chemical function of the stomach. This vegetable enzyme resembles pepsin completely, excepting in the fact that it is capable of acting in neutral and even in feebly-alkaline solutions. It has,

further, the advantages of preserving its powers for a long time, acting with certainty and when given in small doses, and of being devoid of the unpleasant taste and smell which render many of the pepsin preparations intolerable to the patient. Besides recommending the remedy for the indigestive troubles of adult patients, Lasniée advises its employment in conditions of infantile gastro-enteritis and all the diarrhœic conditions of common occurrence in children.

A. Hirsch $^{116}_{\text{Dec.,'94}}$ recommends that the remedy be suspended in the smallest possible quantity of water, given immediately after the meal, and repeated two or three times at from fifteen to thirty minutes, and in doses which are not too small,—4, 5, or 7 grains (0.26, 0.32, or 0.45 gramme). In addition, careful regulation of the diet is by no means to be neglected if success is to follow the administration of the drug.

Edward G. Younger, of London, $^{6}_{\text{Apr.27,'95}}$ has found that in uncomplicated cases of atonic dyspepsia papain appeared to exert very beneficial effects, and in the instances in which this was the case he was struck by the almost immediate relief thus obtained. In only three cases in which he prescribed the drug did it apparently fail, but in two of these the patients were emotional women in whom the dyspepsia was associated with subjective symptoms of an hysterical character. The third case was that of a man, aged 46 years, an alcoholic, who suffered from dyspepsia with water-brash, which yielded to bismuth.

Guthrie Rankin, of Warwick, Eng., $^{6}_{\text{May 4,'95}}$ in a communication on the therapeutics of papain, states that, if there is great irritability of the stomach, any medicinal mixture, from its disagreeable taste, is apt to produce nausea, if not actual sickness, while the mineral acids are not always indicated and are sometimes very badly tolerated. In his own experience these difficulties have been overcome by the administration of the required drugs in pill form; and, while each case demands a combination suited to its particular needs, the following formula, when combined with a suitable regimen, has again and again yielded most excellent results:—

℞ Ferri sulph.,
Papain, ... āā 2 grains (0.130 gramme).
Ext. cannab. Ind.,
Ext. nuc. vom., ... āā $\frac{1}{4}$ grain (0.016 gramme).
Ext. rhei, ... $\frac{1}{2}$ grain (0.030 gramme).
Ft. pil.

Sometimes reduced iron suits better than the sulphate, at others arsenic meets the requirements of the case better than

nux vomica, and occasionally morphia is more efficacious than cannabis Indica; but he is convinced that, apart from these necessary differences in detail, the full value can only be got from papain when it is administered in association with such other medicinal agents as the symptoms of each case declare to be essential, and that in a large proportion of deranged stomachs it is best tolerated in the form of a pill.

Parachlorphenol.—Ch. Girard, of Bern, [197 No.7,'95; 5 Feb.,'96] states that this drug is crystalline at ordinary temperature, has an odor similar to phenol, and is very soluble in alcohol and ether, although but slightly in distilled water, which takes up only 1.3 per cent. With the addition of a small quantity of alcohol a 2-per-cent. solution can be obtained. It coagulates albumin, as does phenol, but not completely. According to Karpow, in 2-per-cent. solution it is a little less energetic than corrosive sublimate 1 to 1000 against the spores of anthrax, but is incomparably more active than 5-per-cent. solutions of phenol or cresol. It is much less poisonous than the substances above mentioned. The urine of the animals used for experiment, even exposed to the air, remained for a month without odor or any sign of putrefaction, the coloration only becoming more pronounced. From experience with this antiseptic in about 200 operations the following conclusions are reached: In from 1- to 2-per-cent. solutions it is the most energetic antiseptic which organic chemistry furnishes; it is of definite chemical combination, and in solution is colorless or almost so, and its odor is less disagreeable than either phenol or cresol derivatives; it can be used for the disinfection of the hands and instruments as well as the usual antiseptics.

Permanganate of Lime.—See Calcium.

Permanganate of Potassium.—See Potassium.

Peru, Balsam of.—See Balsams.

Petroleum.—See Kerosene.

Phenacetin.—Jennings, of Detroit, [51 Mar.,'95] considers this drug by far the most satisfactory of the coal-tar antipyretics for children. Clinicians generally agree that powerful effects like cyanosis and dangerous cardiac depression very seldom occur with reasonable dosage, though they do follow the use of acetanilid and antipyrin. A mistake is frequently made in administering these drugs in too large doses too frequently repeated. All the reduction in temperature that is necessary or desirable is 2 or 3 degrees, and this can be safely brought about with phenacetin in almost any disease. Such a reduction almost invariably relieves the pain and distressing symptoms of pyrexia. The beginning dose of phenacetin should never be larger than ½ grain (0.03 gramme) to each year of age.

This dose may be repeated every hour for two or three doses. Guided by the thermometer or the relief of the distress and the breaking out of a gentle perspiration, the administration of the drug can then be stopped. Cheney, of San Francisco, $^{147}_{\text{June,'95}}$ states that there is no doubt that phenacetin is one of the most valuable drugs for the reduction of fever in children, because of its sedative action on the nervous system, as well as its direct antipyretic effect. Children are so sensitive and so easily disturbed, and even made delirious by elevation of temperature, that the chief indication often becomes that of quieting them and giving them sleep, even more than the reduction of the fever. Phenacetin accomplishes both purposes at the same time. It should be more used than it is, in preference to the drug more commonly resorted to,—aconite; for, as Jennings says, aconite reduces temperature only by depressing the heart's action and diminishing blood-pressure,—a fact often forgotten in the routine prescribing of this drug.

W. M. Holladay, of Hampden Sidney, Va., $^{81}_{\text{Oct.,'94}}$ states that the fact that phenacetin contains so large a percentage of available phenol makes it especially valuable in all fermentative troubles in the small intestine, especially where pain is present, as in typhoid fever, diabetes, bladder troubles, etc. The acid, being eliminated by the urine, has a local action on the inflamed mucous membrane, but the drug, aside from that, seems to have a soothing effect on the whole genito-urinary system. It can be pushed to any extent, the urine not showing the peculiar cloudiness of carbolic-acid poisoning. Of course, if the heart's action is very feeble, discretion must be used as to the size of the dose and frequency of administration, as with any other depressant.

An editorial writer $^{2}_{\text{Dec.22,'94}}$ states that in phenacetin a claim to freedom from ill effects, put forward on its introduction, has been justified in a comparative sense by subsequent experience. Nevertheless, unpleasant and profuse diaphoresis may render its habitual use in phthisis and typhoid fever undesirable; collapse and exhaustion are not unknown even after medium doses, while palpitation and oppression of breathing followed by nausea and vomiting have likewise been observed. Cutaneous eruptions, chiefly urticarious, prevail with a frequency scarcely inferior to antipyrin; and cyanosis of the face, due to changes in the hæmoglobin, may be seen to a similar degree. In short, we may meet all the ill effects of the aromatic group, though the incidence is undoubtedly less. Its use as an antipyretic, however, remains small, as its power in that respect is not equal to the others except when given in doses that are very often associated with symptoms of intoxication.

G. Krönig $\frac{4}{\text{No.46,'95}}$ reports a fatal case of phenacetin poisoning. A 17-year-old boy suffering from occipital headache was ordered five 15-grain (1 gramme) phenacetin powders, not more than two to be used in a day. After an evening dose vomiting commenced, followed by great weakness and a bluish-gray color of the face and lips. The temperature was 102.2° F. (39° C.), the pupils were of medium size, the pulse weak, and the patient complained of headache, vomiting, and diarrhœa, the conjunctivæ slightly jaundiced. General icterus followed, and cyanosis of lips, ears, hands, and feet. Urine obtained by catheter was thick, dark reddish-brown in color, containing masses of almost pure blood. Death followed two days after the ingestion of the remedy. As the patient was septic from a purulent otitis, a necropsy was necessary to show that death was due to the drug. The diagnosis reached by this means was universal methæmoglobinæmia, although the patient within the preceding three weeks had taken four similar doses with no apparent ill effects.

J. Lamond Lackie $\frac{22}{\text{Aug.28,'95}}$ reports two cases in which phenacetin caused dyspnœa and orthopnœa. In the first case 15 grains (1 gramme) every four hours was taken for some time with impunity, but after thirty-six hours the patient repeated the dose in two hours, the result being marked shortness of breath and extreme restlessness. On a subsequent occasion the patient was similarly affected from the same cause. In the second case 20 grains (1.3 grammes) were administered every two hours until 2 drachms (8 grammes) had been absorbed, when dyspnœa resulted and continued for an hour.

John Harold, of London, $\frac{15}{\text{Dec.,'94}}$ reports the case of a woman, suffering from ovaritis and acute dysmenorrhea, who took 5 to 8 cachets containing each 10 grains (0.65 gramme) of phenacetin in twenty-four hours. She suddenly complained of palpitation of the heart; her face was brilliantly scarlet with the exception of the bridge of the nose and the upper lip, which were markedly pallid; the pulse was extremely rapid, and she also suffered from headache, dyspnœa, and diaphoresis. There was no urinary or gastric disturbance.

Phenocoll.—Strizover $\frac{530}{\text{No.9,'95}}$ reports three cases of malaria rebellious to quinine and arsenic which yielded to hydrochlorate of phenocoll in doses of 0.60 gramme (9¼ grains) three times daily. The first patient had been successfully treated two years previously by methyl-blue, but this remedy, as well as arsenic, failed. Fever disappeared after three doses of phenocoll had been taken, and after thirty-six doses the patient was cured. The second case was one of left trigeminal neuralgia coming on daily at fixed hours.

This was cured completely after twenty-four doses. Ginno Righi [1153 Oct.12,'95] also advocates the use of the drug in malaria, as it acts not only against the fever, but also against the hypertrophy of the spleen and the symptoms to which this gives rise. It should be given two hours before the attacks come on.

Phenols.—Klein and Parry Laws [2 Jan.12,'95] have shown that phenylacetic and phenylpropionic acids have a stronger antiseptic action on pure cultures of anthrax bacilli than phenol itself, the higher acid, phenylpropionic, being stronger than phenylacetic. Parry Laws [178 Dec.,'94] has continued these investigations, and shown that the next higher acid of the series, phenylbutyric, has still stronger antiseptic power than phenylpropionic. He finds that this acid restrains the growth of anthrax bacilli when present in the proportion of 1 in 2500, and that it kills the sporeless bacilli when exposed for thirty minutes to a solution of 1 in 1000 or for ten minutes to a solution of 1 in 700. Hence he concludes that the phenyl-substituted fatty acids increase in antiseptic power with the increase of the molecular weight of the acid.

Phosphate of Lime.—See Calcium.

Pilocarpine.—The transformation and mechanism of pilocarpine in the organism has been investigated by A. Curci, [409 v.23,p.297,'95] who finds that the drug does not undergo great alterations in the economy, as it is found in the organs and in the urine as pilocarpine or sodic pilocarpine. It acquires a phenolhydroxyl in the pyridine molecule and to this may be attributed its secretory and convulsive action.

Assuming that artificial increase in the number of lymphocytes plays an important part in recovery from infectious diseases, Louis Waldstein, of New York, [4 Apr.29,'95] found that pilocarpine was capable of effecting such a change. With this drug he caused marked reduction in the size of enlarged lymphatic glands in the sequence of measles and scarlatina. Children were given injections beneath the skin of $\frac{1}{30}$ grain (0.002 gramme), at intervals of one or more days for a week or ten days. Improvement also followed such treatment in a case of mediastinal and multiple lymphomata, although the patient was at the same time taking arsenic. He expressed the opinion that pilocarpine is capable of a curative action upon lymphatic glandular tumors. Examination of the blood, under such conditions, disclosed a state of hypoleucocytosis, which disappeared with the institution of the treatment. The temperature was also slightly elevated, but declined under treatment. Complaint of pain referred to the ears likewise disappeared.

For ten years past Mollière, of Lyons, [108 Nov.13,'94] has treated acute

and chronic nephritis by means of external applications of pilocarpine. He uses an ointment containing 0.05 to 0.10 gramme (⅛ to 1¾ grains) of nitrate of pilocarpine in 100 grammes (3¼ ounces) of vaselin. Some part of the body is rubbed with this and then covered with cotton and oiled silk. In a couple of hours there is profuse perspiration and diuresis, with consequent improvement of the dyspnœa and general symptoms. The only contra-indication is uræmia.

Grandclément [211 May 26,'95] concludes, from his experience of pilocarpine, (1) that to produce general sweating, which he considers has been too much abandoned of late, one ought to employ the old methods, as a rule, and use injections of pilocarpine only as the exception, as in some subjects the latter drug produces poisoning resembling that caused by nicotine or aconitine, and (2) to produce local sweating the old method of wrapping the part in cotton-wool and oiled silk is the best, as frictions with pilocarpine produce only an insignificant amount of sweating. In support of this latter assertion he relates a case which was treated by him with local applications of pilocarpine combined with the old cotton-wool and oiled-silk method. It was found that, unless the latter was well applied, the sweating was practically *nil*, in spite of the pilocarpine.

J. A. Reagan [176 Dec.,'94] has found the following prescription very effective in the early stage of pneumonia :—

℞ Fl. ext. jaborandi, ... 1 ounce (31 grammes).
Sweet spirits nitre, ... 1 ounce (31 grammes).
M. Sig. : One teaspoonful every hour until the patient perspires freely.

In diphtheria he gives jaborandi in doses according to the age of the child, until the salivary glands act freely.

Potassium.—McShain [61 Dec.8,'94] reports the case of a girl of 11 years who, twenty-four hours previously, had, while employing a gargle of chlorate of potassium, swallowed a considerable quantity of the solution, which, with some tablets of chlorate of potassium which she had taken, represented about 200 grains (13 grammes) of the drug. The condition of the patient was that of marked cyanosis and temperature of 102° to 103° F. (38.9° to 39.5° C.); scanty urine, which was exceedingly dark in color and which, finally, was not secreted in larger quantities than half an ounce in twenty-four hours. Later on in the case the urine became somewhat more free, but contained large quantities of albumin, while jaundice and hepatic tenderness were developed. McShain quotes two cases,—one reported by Scherer, in which a grown man presented grave symptoms of poisoning after taking two cents' worth of chlorate of potassium, and another case of Hays, in which a

young woman swallowed an unknown quantity of chlorate of potassium after the purchase of ten cents' worth of this article. In both of these cases symptoms were like those of the case reported by McShain, excepting that in these cases recovery took place, while in that of McShain death suddenly occurred on the sixth day after the poison had been ingested.

Mantegazza $\frac{507}{\text{v.30,No.1,'95}}$ is a partizan of injections of potassium permanganate in gonorrhœa, even in the subacute periods or in patients suffering from slight epididymitis, and especially in acute and subacute inflammation of the ureter.

A case of acute poisoning from the simultaneous use of tannin and permanganate of potassium is recorded by E. Harnack. $\frac{69}{\text{No.10,'95}}$ The patient, a girl 14 years of age, was suffering from severe eczema of the arms. The tannin was applied locally in solution, and the parts then bathed in a 1 to 1000 permanganate-of-potassium solution. High fever and diarrhœa supervened, with intense irritation of the parts, disappearing only a week after the treatment was suspended. The author believes that the great oxidizing power of the permanganate had caused a transformation of the tannin, producing pyrogallol or a similar substance having toxic properties.

[For potassium permanganate in opium poisoning see "Legal Medicine and Toxicology."]

Potassium Bromide.—See Bromides.

Pyoktanin.—Posselt $\frac{586}{\text{No.11,'95}}$; $\frac{26}{\text{Oct.1,'95}}$ employed pyoktanin in 85 cases of gonorrhœa, 13 of which were subacute, 12 chronic, and 60 acute; also 2 cases of gonorrhœal conjunctivitis and 2 cases of gonorrhœal cystitis. The intra-urethral injections were made from two to four times a day with solutions of from 1–1000 to 1–2000. The patient was directed to retain the injected liquid one minute. In 68 patients the injections were painless, in 3 there were intense pains, but inconstant, and in 1 the author was obliged to relinquish the treatment on account of the pain. The author states that pyoktanin is a good remedy in the treatment of gonorrhœa, but it must be used with care on account of its irritant action, and the solution must not be too concentrated,—1–1000 to 1–2000 being the maximum. What renders pyoktanin little appropriate in private practice is the violet stain which it gives the hands and the under-linen of the patient.

Pyridine.—T. L. Brunton and F. W. Tunnicliffe, in a preliminary communication on the physiological action of pyridine, $\frac{178}{\text{Oct.15,'95}}$ state that it is not an active poison as compared with its derivatives, being an exceedingly stable body. Its action is almost confined to the sensory part of the nervous system. It has in small

doses a stimulating, and in large a direct paralyzing, action on the cardiac muscle.

Quassia.—Ferdinand Venn, of Chicago, [112 Jan.,'95] reports a case of fatal poisoning from a decoction of 2 ounces (60 cubic centimetres) of quassia injected into the rectum of a child for the treatment of seat-worms. The rectum was not perforated by the nozzle of the syringe. According to H. C. Wood, this is the only case on record of poisoning by this drug, although the experiments of Heppe have shown that the active principle is a poison to frogs, especially affecting the nerve-trunks and muscles; and 0.015 gramme (¼ grain) of it has caused disagreeable symptoms in man, among them being evidences of toxic gastro-enteritis.

Quinine.—Kelsch [243 Feb.,'95; 90 May] believes that all preparations of quinine employed hypodermatically are open to objections. The sulphate dissolved in tartaric acid has caused scars or abscesses. The basic hydrobromate is better borne, but only dissolves in ten times its weight of water, and requires the addition of alcohol. The basic hydrochlorate is only moderately soluble, and the neutral hydrochlorate of quinine (Beurman and Villejean), soluble in double its weight of water, is the most advantageous: Neutral hydrochlorate of quinine, 5 grammes (1¼ drachms); distilled water, to make 10 cubic centimetres (2½ fluidrachms). Each cubic centimetre (15 minims) of the solution contains 0.5 gramme (7¾ grains) of the hydrochlorate; the solution keeps well, and injected under the skin it is well borne. Some of the ill effects attributed to quinine solutions are due to want of antiseptic precautions. Others depend not on the drug nor on the doctor, but on the cachectic and exhausted condition of the patient. In using quinine for hypodermatic injections, certain precautions should be taken: the solution should not be too strong; a part of the body should be chosen where the cellular tissue is abundant; the syringe and needle should be made aseptic by boiling in water, and the injection should be made slowly.

The bimuriate of quinine was found by von Fleischl [54 B.13,p.145,'95] to be most desirable for subcutaneous injections. This author gives the following indications for the subcutaneous use of quinine: 1. In severe malarial infections, where the fever remains high for many hours and severe symptoms, such as coma or convulsions, are present. 2. Cases in which malarial patients are comatose and therefore cannot swallow. 3. In cases where it is desirable that quinine gain access to the circulation quickly, and where the stomach or intestines are in a pathological condition, so that large doses by the stomach will not be absorbed. 4. Where there is a tendency to vomiting or the patient has already vomited quinine

which had been administered. 5. In cases where the patient cannot swallow quinine in wafers. Strong solutions of quinine are so bitter that few patients can take them, and pills will sometimes pass through the intestines without becoming dissolved. 6. In children, wherever quinine is indicated, in malaria, pneumonia, whooping-cough. Quinine tannate, on account of its tastelessness, is recommended for children; is a good astringent, but of little value as an antipyretic. The action of quinine, when injected subcutaneously, is very rapid and certain, and the method is perfectly harmless.

Lemansky, of Tunis, $\frac{996}{\text{Apr.10,'95}}$ recommends administering quinine in black coffee to which a little alcohol has been added. His researches show that the drug appears in the urine in about twenty minutes after administration. If suppositories containing from 0.10 to 1.00 gramme (1¾ to 15½ gains) of a quinine salt and 5 grammes (1¼ drachms) of cacao-butter be given, the quinine will appear in the urine within fifteen minutes. The latter method is thus to be specially recommended.

A cholagogue should, in the opinion of H. A. Hare, $\frac{144}{\text{Nov.,'94}}$ always be given before quinine. In malaria the hydrobromate of quinine is, according to Comby, $\frac{31}{\text{Aug.28,'95}}$ of service in the same doses as the other salts of the alkaloid. This combination is especially useful in nervous, excitable children. It is more soluble and contains a larger proportion of the alkaloid than quinine sulphate, and may be given by the mouth or rectum. Its solubility is further promoted by an association with antipyrin.

The abuse of quinine is discussed by James Harris, of Madras, $\frac{239}{\text{Dec.16,'95}}$ who states that malarial fever should be carefully distinguished from other kinds of fever before resorting to quinine. Distinct rigors followed by fever and recurrence with well-timed intermission will more or less put the practitioner on the alert. Its administration in every kind of fever, when the temperature has been brought low by other antipyretics, should be condemned. A careful observation undoubtedly shows that in many cases of fever quinine raises the temperature immediately after its administration.

The abuse of quinine reaches its climax when its heroic admirers, believing the manifestation of all its physiological symptoms to be the surest indication of its clear action, push it to such a dangerous extent as to produce deafness and dullness of general perception. Several painful cases have come under the observation of the author in which the bright and intelligent expression of the face has been changed by quinine to a dull and vacant gaze.

The susceptibility of some patients to its action is so great that a few grains completely upset them, producing a series of symptoms which alarm the patient and puzzle the physician. It is also a scourge in the hands of the native Indian doctors, whose ignorance of diseases assumes a dangerous shape when armed with a weapon which, though invaluable in itself, requires much caution in its use. Owing to the abuse of this drug, it is hated and dreaded by the natives, who attribute all sorts of evil qualities to it. Many of them who place themselves under the treatment of English physicians make it a condition that quinine is not to be administered.

In the weak and debilitated state of a patient, when his nerves are exhausted and excitable, the quinine, which is administered when the temperature is low with the idea of fixing it, often acts so quickly as to produce all the symptoms of quininism, which are completely overlooked by the physician, who still pushes the drug. Administering quinine even in malarial troubles of long standing requires caution, as a large quantity in a patient who is already bloodless tends to destroy the few scattered surviving red corpuscles, making his case less hopeful and more difficult.

If the weak, fluttering heart, the want of assimilative power, the anæmic condition, and the state of the liver and kidneys are attended to, only very small doses of quinine will be required to bring about astonishing results, and in many cases the fever will leave the patient if the foregoing conditions are treated without resorting to the employment of this drug.

Felix Arnstein, of Kutno, Poland, $\frac{520}{\text{No.4,'95}}$ has observed a number of cases of malaria with an idiosyncrasy to quinine, the remedy failing to influence the disease, while the use of methylene-blue led to rapid and complete cure. He cites the case of a man of 35 years, of a healthy family, who applied to him on account of quotidian malarial fever of several weeks' standing. In view of the patient's statement that on one occasion, a few years previously, the use of quinine had given rise to a rash with violent nervous disturbance, the writer commenced the administration of the drug (hydrochlorate of quinine) with 0.10-gramme (1¾ grains) doses three times a day. The remedy was tolerated quite well, but did not make the slightest impression on the disease. After a few days the quantity was doubled, with the result that a second dose was followed by the appearance of a universal rash, excitement, præcordial anxiety, intense aural noises, etc. The malarial symptoms, however, remained unchanged. Methylene-blue having been substituted for the quinine (0.12 gramme—1⅞ grains—four

times daily), the paroxysms completely ceased in two days. No relapse occurred.

Quinine Iodate.—See Iodic Acid.

Ragwort.—See Senecio.

Resorbin.—This new ointment-base is a fat-emulsion consisting of almond-oil, wax, a minimal quantity of gelatin and soap, and a small quantity of lanolin. It is distinguished by an extraordinary penetrating power in comparison with lard and vaselin. On account of the water which it contains, it acts as a cooling ointment and diminishes itching and inflammation. It may be employed, according to Ledermann, of Berlin, [28 B.19,No.2,'94; 5 Mar.,'95] with benefit in pruritus, especially the senile variety. On account of its powers of penetration, it is useful for the removal of crusts in eczema, psoriasis, and seborrhœa, especially when combined with salicylic acid, sulphur, and resorcin. The scales of ichthyosis are readily softened by it and the feeling of tension relieved. It may be used advantageously in all artificial inflammations where there is an inclination to the formation of erosions and rhagades. Incorporated with suitable medicaments, it is adapted to the treatment of acute and chronic eczema, lichen ruber, and psoriasis. It is especially suited to the introduction of medicaments into the body as a base for iodine and iodide-of-potassium ointment. Mercurial ointment prepared with this base is well adapted to the treatment of syphilis.

Resorcin.—This drug is recommended by Carrez, of Lille, [220 Mar.23,'95] as an excellent reagent for albumin, sensitive and certain and capable of being used at the home of the patient. All that is required is a test-tube, a pipette holding 2 cubic centimetres (31 minims), and about 1 gramme (15½ grains) of resorcin. The drug is placed in the test-tube and 2 cubic centimetres (31 minims) of ordinary water added with the pipette. It is shaken and the resorcin dissolves rapidly, when the urine, no matter what its reaction may be, is taken with the pipette and poured gently over the surface of the resorcin solution. If the urine contain albumin a white ring is seen separating the two liquids, and very distinct. There is no coloration. To decide whether the ring is due to peptone or albumin the test-tube is plunged in boiling water for a few minutes, when, if due to albumin, the ring will persist.

Ricine.—See Castor-Oil.

Salaktol.—This is a new remedy for diphtheria described by Walle [41 Nov.15,'94] and made of hydrogen peroxide, sodium salicylate, and sodium lactate. It is applied with a pencil to the affected portions of the throat, or, when this is not practicable, given as an inhalation. It is also used as a gargle, and tablespoonful doses

given after each local application, the latter being made every three hours, or every two hours in urgent cases. It acts as a rapid disinfectant, loosening and dissolving the false membrane. Antipyretics are rarely necessary. It was used by the author in fifty-two cases without a failure.

Salicylic Acid.—The virtues of salicylic acid and its most commonly used salt, salicylate of soda, are reviewed by Chéron. [164 No.2,'95] In diphtheria and other infective throat and nose affections there are few local remedies which will give better results than solutions of salicylic acid in lotions of 1 in 1000 or 1 in 2000. A useful mixture in acute bronchitis is the following [3 Jan.9,'95]:—

℞ Sod. salicylat.,	. . .	1 drachm	(4.0 grammes).
Ammon. carb.,	. . .	1 drachm	(4.0 grammes).
Tinct. camph., co.,	. . .	1 fluidrachm	(4.0 cubic centimetres).
Syrup. aurantii,	. . .	½ fluidounce	(46.5 cubic centimetres).
Syrup. Tolut.,	. . . .	½ fluidounce	(46.5 cubic centimetres).
Aq.,	. . . . .	ad 4 fluidounces	(125 0 cubic centimetres).

Ft. mist.
Sig.: A dessertspoonful every three hours.

Latham [1093 Mar.,'95] recommends that when salicylic acid is administered only that obtained from the vegetable kingdom should be employed. It should be prescribed without any alkali or base, and a good form is

℞ Acid. salicylic.,	. . . . .	100 grains (6.5 grammes).
Pulv. acaciæ,	. . . . .	15 grains (1.0 gramme).
Mucilaginis,	. . . . .	q. s.—M.

The mass is allowed to stand and harden, and is then divided into 30 pills. Each pill contains a little more than 3 grains (0.20 gramme). In acute rheumatism a dose of 20 grains (1.3 grammes), in 6 pills, is given every hour for three doses, and then every four hours, or in sufficient quantity to bring the patient fully under the influence of the drug,—buzzing in the ears, headache, slight deafness.

As important addenda in the treatment of rheumatic fever, Latham advises (1) the continuation of 40 to 80 grains (2.60 to 5.20 grammes) daily of salicylic acid for ten days after all pain and pyrexia have passed away; (2) a diet of milk and farinaceous food for at least a week after the evening temperature has been normal; (3) a daily and complete action of the bowels, preferably with calomel, and (4) to envelop the patient in a light blanket and with no more bedclothes than are sufficient to keep him from feeling cold, the object being to cool the patient,—not, as in former years, to sweat the poison out of him.

To avoid nausea or sickness the salicylate is frequently given in the following form:—

℞ Sodii salicylatis, ... 20 grains (1.3 grammes).
Aq. cinnamomi, ... 1 fluidounce (31.0 c.cm.).

To which, if necessary, 5 grains (0.32 gramme) of carbonate of ammonia may be added, or it may be given in the effervescing form :—

℞ Sodii salicylatis, ... 20 grains (1.3 grammes).
Sodii bicarbonatis, ... 20 grains (1.3 grammes).
Syrup. aurantii, ... 1 fluidrachm (4.0 c.cm.).
Aq. chloroformi, ... ad 1½ fluidounces (50.0 c.cm.).

This dose can be given with 17 grains (1.1 grammes) of citric acid or a tablespoonful of lemon-juice. In the latter case the syrup of orange is replaced by ½ drachm (4 cubic centimetres) of simple syrup.

Repeated doses of lemon-juice in some constitutions may produce sudden prostration, and in any form the salicylate may give rise to nausea. It is because this is entirely avoided by giving the natural salicylic acid in pills that Latham prefers this method. The pills do not readily undergo solution in the stomach. The acid is insoluble in the acid juices there, and the pills pass on into the duodenum before solution takes place.

At the beginning of an ordinary cold relief is frequently obtained by taking

℞ Sodii salicylat., ... 2 drachms (8.0 grammes).
Spirit. ammon. aromat., . . . 1 fluidounce (1.0 c.cm.).
Syrup. aurantii, ... ad 2 fluidounces (62.0 c.cm.).
Sig. : One teaspoonful in water every four hours.

From a resemblance in the intermittent character common to exophthalmic goitre and gout, and from finding a rheumatic history in many patients with Basedow's disease, Chibret $^{78}_{\text{Jan.31,'95}}$; $^{15}_{\text{July}}$ has tried salicylate of sodium in the treatment of this disease. He gave 60 grains (4 grammes) during the twenty-four hours, dissolved in a large amount of liquid (a pint) in order to avoid intolerance. In four cases he obtained a rapid improvement in the symptoms, and the results have been so lasting that he has not waited for a larger number of observations, but has at once called the attention of others to the fact, as they would have greater opportunities of seeing these cases than could occur to him,—an ophthalmologist.

From experiments on a large number of rheumatic patients in the Munich Hospital Erlanger $^{152}_{\text{No.1,'95}}$ finds that one may employ rectal injections of salicylic acid with advantage in treating this disease. Absorption, he has observed, is sometimes slower by this method, though the results are as satisfactory as when given by the mouth. He gives the following rules for its administration: The rectum should first be emptied by a preliminary injection ; the

solution should be lukewarm. The following is a convenient formula:—

℞ Sodæ salicylat., ... 1½ drachms (6 grammes).
Tinct. opii, ... 15 minims (1 c.cm.).
Aq., ... ad 3 fluidounces (93 c.cm.).

The patient must be instructed to retain the clyster.

In cases of diphtheria as good results have been claimed by Kersch $^{3}_{\text{No.1,'95}}$ from the internal use of salicylate of soda as are obtained by the antitoxin treatment. He uses the following formula:—

℞ Sodæ salicylat., ... 75 grains (5 grammes).
Sodii iodidi, ... 45 grains (3 grammes).
Syrup. mori, ... 1 fluidounce (31 c.cm.).
Aq., ... ad 6 fluidounces (186 c.cm.).
Sig.: A tablespoonful, or two if there is great urgency, every hour.

Out of seventeen cases treated he lost three. He excludes two cases where treatment commenced when there was intense cyanosis with orthopnœa and cardiac weakness. Under the influence of this treatment the false membranes were rapidly thrown off, and they gradually ceased to re-appear. There is no danger of serious iodic symptoms.

The volatility of salicylic acid, according to Linossier and Lannois, $^{211}_{\text{June 23,'95}}$ explains its absorption by the healthy skin; it is absorbed in the form of vapor when used as a pomade. R. Jemma recommends $^{409}_{\text{v.23,p.269,'95}}$ its use externally in acute articular rheumatism, as the inconveniences caused by its internal administration are thus avoided. Its analgesic action is constant and rapid, and its revulsive action on the joint is not accompanied by any subjective disturbances. It has little antithermic effect when thus applied.

Borosalicylate of sodium, according to Bernegau, $^{24}_{\text{Sept.8,'95}}$ is prepared by mixing 676 parts by weight of sodium salicylate with 124 parts of boric acid. The former is finely pulverized and intimately triturated with the boric acid and water. The mass hardens rapidly. It is then dried and pulverized and used to prepare gauze and ointment, a formula for the latter being

℞ Borosalicylate of sodium, . . . 20 grammes (5 drachms).
Glycerolated arnica, ... 40 grammes (1¼ ounces).
Lanolin, ... 18 grammes (4⅔ drachms).
Vaselin, ... 22 grammes (5¾ drachms).

The following case of severe maniacal excitement following the use of salicylate of sodium is recorded by Robertson $^{166}_{\text{Oct.,'95}}$: A quiet, inoffensive woman who had been an inmate of the Northumberland Asylum for eighteen months, the subject of delusional insanity, began to suffer from subacute rheumatism. Salicylate

of sodium in 20-grain (1.3 grammes) doses every four hours was prescribed, but after the administration of six doses she became restless and talkative, and this shortly passed into acute delirious excitement with violent inco-ordinate muscular activity, which subsided in thirty-six hours. The synovitis, which had disappeared, afterward returned, but subsided under treatment by alkalies without the occurrence of cerebral complications. In this case the artificial salt was used, which would lend support to the view expressed by Charteris and MacLennan, that the toxic properties are to be attributed to the impurities of the phenol employed in the synthetic preparation of the artificial acid.

Saligenin.—According to Lederer, $^{34}_{\text{No.7,'95}}$; $^{121}_{\text{May}}$ saligenin (orthy-oxybenzoic alcohol), $C_6H_4(CH_2OH)OH$, is a drug which has an efficacious action in acute articular rheumatism. It is almost free from drawbacks, and by its solubility in alkalies and its rapid absorption by the bowel may be utilized in other infectious diseases. It may be employed in relatively small doses in comparison with salicylic acid. In proportion to the gravity of the case, it is prescribed in the dose of 0.50 to 1 gramme ($7\frac{3}{4}$ to $15\frac{1}{2}$ grains) every hour or two hours. Its action is rapid and stable. On account of the absence of buzzing in the ears, cyanosis, or digestive troubles, saligenin should, Lederer believes, be preferred to salicylic acid and its derivatives.

Salol.—Colombini $^{589}_{\text{Sept.14,'95}}$ has studied the local effects of salol dissolved in liquid vaselin. In the presence of alkaline fluids or living tissues salol appears to break up into salicylic acid and phenol in the nascent state. When split up in this way, while the antiseptic action of each of the acids was maintained, their irritant action was absent either from the way in which they were set free or from the small quantities of the acids evolved. Clinically, salol in vaselin solution—the best solvent—did not irritate the skin nor inflame ulcerated surfaces, which healed under the treatment without pain or local reaction. The author believes that salol may prove a non-irritating and sufficiently powerful antiseptic for local application.

J. A. Cantrell $^{144}_{\text{Sept.,'94}}$ has found salol beneficial, to some extent, in tinea circinata and curative in tinea versicolor, while in tinea tonsurans and tinea sycosis it showed no effect.

John T. Bowen, of Boston, $^{99}_{\text{Sept.19,'95}}$ states that Elsenburg has used this preparation in various cutaneous affections for two years and has found it of special value in furuncles and carbuncles. It is prepared by moistening 1 part of camphor with a few drops of alcohol, rubbing this in a porcelain mortar with 1.4 parts of salol until a transparent liquid is obtained. In from twelve to twenty-

four hours after administration the pain diminishes, the redness and inflammation of the adjoining parts disappear, and the tumor becomes progressively smaller, without the formation of pus. As a rule, the secretion obtained from the vesicle at the point of the furuncle yields a pure culture of the staphylococcus aureus on nutrient media, as do also bits of the infiltrated tissue. After camphorated salol has been used for twenty-four hours no such cultures can be obtained. When suppuration has already taken place in the furuncle, and after the slough has been removed, the pain and hyperæmia may be much lessened by the application of the camphorated salol and the suppuration diminished. The healing process then advances quickly, a slight discoloration and some infiltration being felt only for a short time. The method of using the drug is to lay bare the point of the furuncle or, in the case of carbuncle, to make several moderately deep incisions in order to facilitate penetration into the infiltration; afterward the lesion and the surrounding hyperæmic parts are covered with cotton compresses soaked in camphorated salol and an impermeable covering is placed outside.

Salophen.—Chemically this drug is a salicylic ether of acetyl-paramidophenol; it is insoluble in cold water and slightly soluble in hot, but is freely dissolved by alcohol and ether, and is easily decomposed in an alkaline medium. Salophen is not decomposed in the stomach, but is slowly decomposed by the intestinal secretions into its more elementary constituents,—salicylic acid and acetyl-paramidophenol. The drug owes its antipyretic, analgesic, and antirheumatic properties to the salicylic acid chiefly, but also to the aniline bases, though it is free from the toxic properties of the latter. Elimination takes place chiefly by the urine, and to some extent by the fæces.

After quoting many cases in which the use of this drug produced beneficial effects, Huot $^{2000}_{'95;\ \text{Oct.}12,'95}$ ^{6} concludes that salophen possesses the remedial properties of salicylate of sodium and has not the inconveniences of the latter. It is well tolerated and does not irritate the stomach or the nervous system. It may be given in the powdered form, in cachets, or any other convenient manner, and an average dose would be from 3 to 4 grammes ($\frac{3}{4}$ to 1 drachm) in twenty-four hours.

The drug is recommended by Lavrand, of Lille, $^{220}_{\text{Dec.}22,'94}$ as being fully as valuable in rheumatism as salicylate of sodium, while it does not provoke the same headache, tinnitus aurium, or feeling of intoxication. It does not affect gastric digestion or give rise to nausea, as it does not decompose except in an alkaline medium (the intestine). The taste is insipid and not disagreeable. The

average dose used by him is 2 grammes (31 grains) daily, divided in four doses.

Pierre Marie [3 June 5,'95] finds it a remarkable substitute for sodium salicylate, and valuable in acute and subacute articular rheumatism and in gout. It has no action upon chronic rheumatism. One patient suffering from the chorea of Sydenham was cured in eight days by its use. B. H. Waters [1 May 25,'95] gives a report of twenty-five cases of rheumatism treated with salophen, sodium salicylate, and ol. gaultheria, and concludes that improvement was more rapid with salophen than with the other drugs, that complications were less serious, that the average length of treatment was reduced, and that in no case were gastric, renal, or constitutional disturbances observed, while the drug was easy of administration and not unpleasant to the taste. He gives 120 grains (8 grammes) during the twenty-four hours at first, and reduces the daily amount afterward.

De Buck and Vanderlinden [1160 Nov.29,'94] testify to the antineuralgic and analgesic properties of salophen and its value in the treatment of neuralgias, cephalalgias, odontalgias, etc. They conclude that the analgesic action is not thoroughly manifested till doses of 3 grammes (46 grains) and more per diem are reached. No troublesome accessory symptoms attend its use.

L. Capellari [589 Dec.2,'95] used it with great success in the treatment of four cases of sciatica. The first case was that of a man, 70 years old, who had suffered from the disease for four weeks. Daily doses of 4 grammes (1 drachm) of salophen were given for four days in succession, when he seemed cured. Relapse took place in the space of some days, but definite cure was then obtained by similar doses of the drug for six days.

Drews, of Hamburg, [297 Nov.,'95] recommends it in the rheumatic diseases of children, and Claus [116 Nov.,'95] in the migraine of arthritic subjects.

Scopolamine Hydrobromate.—Scopolamine is an alkaloid which was discovered by A. Schmidt, of Marburg, in the root of *Scopolia atropoides*, and has been employed by Raehlmann, of Dorpat, [84 No.20,'94; 2 Dec.22] for more than two years in his ophthalmic clinic, with excellent results. At first he used the hydrochlorate, but subsequently found that the hydrobromate was more easy to obtain in a pure state, and so recently he has exclusively employed the latter salt. In iritis it acts very energetically, often removing synechiæ which atropine had failed to influence. It exerts, too, a very beneficial effect on the course of the inflammatory processes, which it shortens considerably. Consequently it quickly and effectively relieves the pain of iritis and other inflammations of

the anterior portion of the eyeball. Unlike atropine and hyoscine, —to which, by the way, it seems to be the more closely allied,—it produces scarcely any unpleasant by-effects, and those which it does occasionally cause—such as dryness of the throat—are not of serious consequence. As it is five times as active as atropine, a solution of from 1 to 2 per 1000 is quite strong enough for ordinary purposes. As the effects are transient, it is desirable, when using the drug for its antiphlogistic properties, to repeat the instillations three or four times a day. Raehlmann considers scopolamine to be the most valuable and the most active of all ophthalmic remedies.

Leopold Grossmann [57 Jan.20,'95] finds that in normal eyes a 2-per-cent. solution produces enlargement of the pupil in from eight to ten minutes; this reaches its maximum in from fifteen to twenty-five minutes,—about half the time required by a 1 to 120 solution of atropine. Paralysis of accommodation ensues in thirty to thirty-five minutes, while with atropine it requires fifty to sixty minutes. The pupil regains its normal size within from four to six days, while after atropine seven to ten days are necessary. Combined with cocaine, the action of scopolamine is intensified, while that of atropine is weakened. A 1-per-cent. solution can be used several times daily for months without the appearance of disagreeable toxic symptoms.

What is usually sold for hyoscine is in reality only impure scopolamine, according to R. Ernst, [586 No.46,'94] though the effects of the latter substance are markedly different from the effects of hyoscine. The author states that scopolamine is contra-indicated in aged persons and in those suffering from renal disease. He administered 0.00025-gramme ($\frac{1}{260}$ grain) doses to ten insane patients suffering from excitement, and found that the calming effect was marked, while in four cases of night-sweats (two of tuberculosis, one of cerebral syphilis, and one of articular rheumatism) 0.0005 to 0.001 gramme ($\frac{1}{130}$ to $\frac{1}{64}$ grain) of the remedy given in the evening checked the perspiration and produced a calm sleep.

Kamensky and Netchaëff [14 July 21,'95] recommend its use for the same purpose, and also for cases of hyperchlorhydria, to replace atropine.

Senecio Jacobæa; Senecio Vulgaris.—Wiet [577 June 30,'95] finds that senecionine, an alkaloid found in *Senecio vulgaris* and *Senecio Jacobæa*, when given to frogs in injections of 1 cubic centimetre (15½ minims), causes abolition of sensibility and destroys the motor properties of nerves by acting upon their peripheral ends.

Serum-therapy.—In an inaugural address given to the Second French Congress of Medicine, held at Bordeaux on August 8th,

Bouchard $\frac{2}{\text{Sept.14,'95}}$ gave an interesting sketch of the treatment of specific diseases by means of bacteria or their products, claiming in passing that his experiments of May 30, 1890, $\frac{920}{\text{Oct.26,'91}}$ wherein he pointed out that a curative power rested in the serum rather than in the leucocytes of the blood, constituted the first published contribution on serum-therapeutics, although Hankin, in his paper on defensive proteids, has practically the same idea. Bouchard insists that when an infectious disease is treated by injection of the bactericidal serum of a vaccinated animal the term bacterio-therapeutics cannot be applied, as we are using an antiseptic substance in which, however, there is this peculiarity, that the antiseptic substance has been manufactured not by the chemist, but by the vaccinated animal. He points out that we do not act upon the tissues, etc., of the sick person, but rather on the attacking microbe. In the course of infective diseases the serum of vaccinated animals acquires not a bactericidal power, which exists to a certain extent in serum of all animals, but distinct antitoxic properties, which properties have been conferred by the action of the cells of the vaccinated animal, whose nutrition and secretion have been profoundly and more or less permanently modified by the temporary action upon them of vaccinal bacterial substances.

Behring and Kitasato, in December, 1890, showed that antitoxic serum acts in doses so minute that we have an additional argument that it does not exert a bactericidal action. Antitoxic serum does not kill the microbes, nor does it interfere with their multiplication or even with their production of poison, nor is it yet proved that it can destroy or neutralize these poisons; rather, it aids the tissue-cells to resist the action of these poisons, many of which appear to act by paralyzing the ordinary defenses against bacterial invasion.

The antitoxic action does not belong to a substance which is found in the blood, nor to a particular chemical condition of the blood-plasma. But the blood, or its plasma, or some of the constituent substances of this plasma may acquire the property of setting into action the organic processes which naturally protect the economy against certain poisons. These normal protective processes, which may be impeded by certain poisons or exalted by the presence of certain substances in the blood, are of two kinds: (1) the destruction or chemical transformation of the toxic substances, and (2) a stimulation at a distance of portions of the nervous system which the poisons tend to paralyze.

After reviewing the proteid products of metabolism Bouchard points out that many of them possess powerful physiological action; they possess a certain degree of toxicity which is destroyed by

heat; they are, therefore, of a proteid nature. The primary products of metabolism have been termed toxalbumins, and their unfavorable influence only has been studied, but their benign effects, when acting in moderate quantities, have been ignored. They differ in their physiological activity and in their effects, even those derived from the same cell, according to the variation in the functions and activities of such cell. By these products each cell influences its fellow, both as regards nutrition and function, either temporarily or permanently, while beyond, and more important than this, the effect may be transferred to other animals and even to different species. He goes so far as to say: "It is by the soluble products which the cells elaborate, much more than through the nervous system, that vital equilibrium among the cells is established." Such equilibrium is unstable. The opposition of antidote to poison, of antitoxin to toxin, is constantly going on. The cells react against the poisons coming to them from other cells, while even the primary products of metabolism may have their molecules divided into two sets,—hemialbumose or hemipeptone, and antialbumose or antipeptone; the products of the two sets may differ from the originals, but they have not different properties, although when acting on the organism they may have different or contrary effects.

Taking a pancreatic cell as an example, Bouchard demonstrates that it secretes a ferment which passes out from the cell and which certainly interferes with the process of coagulation. At the same time the cell manufactures a ferment which remains in the cell, but which, if set at liberty,—by death or weakness of the cell,—actually induces this same process of coagulation. It is, he argues, a matter of little importance whether the organism produces an antidote at the same time and place at which the poison is produced, but it is important that the presence of poison, naturally or artificially brought about, should be followed very closely by the formation of a counter-poison, or antidote.

The protective substance may be (1) a ferment which destroys the poisonous substance,—for example, in the liver; (2) an internal secretion which may become more active in the formation of substances for the purpose of stimulating those tissues which are specially exposed to the attack of the poison or which are specially necessary to the well-being of the organism.

The merit of Behring's great work lies in the fact that he has been able to prove that the serum of an animal exposed to the action of certain bacterial poisons acquires the property of neutralizing the effect of the action of these same poisons, although he is probably in error in assuming that the antitoxic substances are of

bacterial origin; they are really dependent on a permanent modification of the tissues of the animal in which the poisons are acting, in which case the theory of serum-therapy exalts the functions by which we naturally defend ourselves against microbic invasion. The agent which prevents the paralysis of nutrition and function is manufactured by the tissues themselves as a kind of protective reaction against the action of the organized toxins or poisons.

Bouchard's paper is instructive not only for what it contains, but also for what it suggests as regards the building up of serum-therapeutics on a rational basis.

A discussion on the subject before the British Medical Association $\frac{6}{\text{Aug.10,'95}}$; $\frac{2}{\text{Aug.17,'95}}$ was opened by Klein, of London, who stated that experimentally the effects and value of antitoxin in diphtheria were so striking and could be so easily tested that it would be strange if a similar beneficial effect were not manifested when it was used upon the human subject. Immunity was of different kinds: there was natural immunity when the individual was insusceptible to a particular infective disease, acquired immunity when a first attack of a disease protected against subsequent attacks, and artificial immunity when the insusceptibility was the result of certain treatment. Natural immunity was altogether different from acquired immunity, the former being probably dependent upon some peculiarity of cells or tissues, the latter to the presence of chemical substances in the blood, which were termed anti-bodies. The methods of producing immunity to diphtheria and the production of antitoxin by injection of gradually-increasing doses of the toxins or of the toxins *plus* living bacilli were then briefly described.

George E. Krieger, of Chicago, $\frac{1170}{\text{Oct.,'95}}$ gives the following rules for the use of tetanic antitoxin: 1. Since the reaction is usually proportional to the quantity of poison introduced into the organism, an early and thorough antisepsis should be observed in dressing the original wound. 2. The best means for the efficacious neutralization of tetanic germs and toxins have been found to be a strong solution of sublimate with tartaric acid and, especially, the cautery. 3. The amputation of the infected part, even if the latter is of minor importance, will hardly afford any benefit, because the soluble poison is rapidly absorbed and carried into the circulation. 4. As soon as the place of infection has healed, no beneficial results can be expected from local treatment, and no time should be lost in using the antitoxin in doses to effect the best possible immunity. 5. The quantity of antitoxin to be injected is determined according to the strength of the latter, the gravity of the infection, provided there are visible symptoms, the

time since the infection has occurred, and the age of the patient. The shorter the time of incubation or the more serious the latter, the larger ought to be the first dose of antitoxin. 6. The number of injections necessary to save the patient depends also on such circumstances as are just mentioned; but, as a rule, one injection should be administered every other day with a somewhat smaller quantity than was used at first, in order to maintain a sufficient immunity and so prevent a relapse, which occasionally occurs, even after the immunity has set in, and which is due to a premature elimination of the antitoxin.

For diphtheria he states that (1) every case should be treated in its incipiency locally with such antiseptics as seem fit to suppress a mixed infection. 2. The antitoxin will be of so much better effect, even in cases of mixed infection, the sooner a proper dose of antitoxin is administered. 3. The seriousness of a diphtheria infection is frequently underestimated, and for this reason it seems advisable to apply rather large than insufficient doses; for light cases two to three hundred immunizing units; for severer ones, especially after tracheotomy, five to eight hundred units. 4. The application of the serum has to be repeated according to the gravity of the case, on the next day, or even on the same day, until a quantity of six to ten hundred or more units has been injected. 5. The administration of a serum of high potency is preferable to the corresponding amount of a weaker preparation. Used as a prophylactic, an average of one or two hundred immunizing units is sufficient to protect a healthy child against infection. As the immunity gradually decreases according to the elimination of the antitoxin, if no additional injections are given, it is evident that its duration also depends upon the quantity first administered. On the other hand, one can maintain an immunity for a longer period by repeated application of smaller doses at certain intervals.

George G. Van Schaick $\frac{1012}{\text{No.3,'95}}$; $\frac{5}{\text{Feb.,'96}}$ states that the immunization of animals by means of toxins taken from ordinary cultures have hitherto given variable and rather uncertain results. The use of exceedingly virulent cultures has enabled us to immunize animals and obtain an antitoxic serum of great activity. Streptococcous antitoxin possesses a high preventive power in animals. The frequent association of diphtheria with streptococcous infection has suggested to French experimenters the propriety of preparing a serum having antitoxic properties against both the Klebs-Lœffler bacillus and the streptococcus by immunizing the same animal against both poisons. Further, it has been shown that animals which had already been immunized against diphtheria possess a remarkable degree of tolerance against streptococcous infection. Marmorek $\frac{927}{\text{Feb.23,'95}}$

has treated with streptococcous antitoxin 411 patients suffering from streptococcous infection in various forms, with a mortality of 3.4 per cent. In erysipelas, with sufficient dose, relief was felt in from five to twelve hours after the administration of the first injection; headache and muscular pains are lessened and sleep is restored; the temperature is lowered more or less rapidly. If it should not decrease within twenty-four hours, the injection must be repeated. Twoor three hours after the injection there is a rise of the temperature, which is again rapidly lowered, reaching the normal within twenty-four hours. When the intervention is practiced early, a single injection seems to abort the disease. If the disease is further advanced the fever disappears more slowly, and proves especially tenacious in ambulant erysipelas, usually necessitating repeated injections. The local state becomes ameliorated more or less rapidly according to the severity of the infection, the time at which the injection is made, and the quantity of serum employed. In some patients seen at the beginning, the redness disappeared, and in three hours the desquamation started. The latter occurs rapidly and in large shreds. Suppuration in the neighborhood of the disease rarely occurs. Albuminuria, frequent in this disease, is not seen in those patients who receive the serum at the inception of the disease, and in those who have been treated twenty-four to forty-eight hours after the beginning it disappears very rapidly. Two forms of erythema have been occasionally observed, one urticarial and the other resembling purpura, but it is not associated with any febrile movement. Numerous cases have been reported of puerperal infection and erysipelas successfully treated by this serum during the year.

Chantemesse, $^{6}_{\text{Mar.7,'96}}$ in a paper on the administration of various forms of antitoxin serum by means of rectal instead of hypodermatic injections, points out the unpleasant symptoms developed after the hypodermatic use of the antitoxins, such as pain at the site of puncture and urticarial or erythematous eruptions. At the present time this treatment is also employed in some diseases in which a septicæmic condition is more or less pronounced. When the liquid is at all irritating (and this irritation may depend upon the method of injection, the idiosyncrasy of the patient, or defective cleaning of the syringe), acute pain may be caused, and at the site of injection there may be a considerable amount of swelling and even the formation of an abscess. Again, in some cases the mere fact of an hypodermatic injection causes the greatest distress to the patient. Chantemesse therefore adopted the plan of introducing the serum by rectal injection in twenty cases, and convinced himself that the fluid was easily and quickly absorbed, no

untoward effects being noted in any of the cases. The bowel was first washed out by means of a simple enema, and then, by means of an ordinary enema syringe and a gum-elastic catheter of medium size and about twenty centimetres long, the serum was introduced into the rectum. This method of administering the serum, even in repeated doses, caused neither pain nor any other unpleasant effects, and was never followed by cutaneous eruptions. The curative effect seemed equally as efficacious as when the antitoxin was given by hypodermatic injection. The usual improvement followed, as indicated by the general condition of the patient, the fall of the temperature, and improvement in local conditions, disappearance of albuminuria, etc. The question of the specific action of the serum, the rapidity of the same, and the absence of unpleasant or injurious sequelæ having been solved, the respective doses have also to be considered, whether an equal or larger dose should be administered by the rectum than is given hypodermatically. Chantemesse is of opinion, from his experience, that the same effect is produced on the disease by the same dose, whether this be given by hypodermatic injection or per rectum, though further investigations should be made on this point. In severe cases of erysipelas he injected into the rectum 200 or 300 cubic centimetres (6½ to 9½ fluidounces) of the Marmorek serum. This quantity was readily absorbed and no ill effects followed. In local treatment the serum was mixed with five times the quantity of lanolin, which Chantemesse considers an excellent application for erysipelatous lesions. By this treatment pain, redness, and swelling were greatly lessened. He has also treated three cases of diphtheria by injecting the antitoxin into the rectum. The cases responded quite as well as did those in which the serum was given hypodermatically.

[The use of serum-therapy is more fully considered in this ANNUAL under each disease, as "Diphtheria," "Tetanus," "Cancer," "Puerperal Infection," etc.]

Silver.—The germicidal action of fluoride of silver has been studied by C. Lazzaro, $\frac{1147}{\text{v.3,No.1,'95}}$ who states that the well-known instability of the salts of hydrofluoric acid and the intense affinity of the acid for oxygen give them an energetic antiseptic action. Fluoride of silver seems to be the most powerful of them, 1 drop of a 1-per-cent. solution diluted in 10 cubic centimetres (2½ fluidrachms) of water being sufficient to kill the spores of anthrax. The high price and instability of the salt will keep it from general practical use as a disinfectant. In malignant pustule, however, it is of more value than any other antiseptic.

H. C. Tweedy, of Dublin, $\frac{16}{\text{Aug.,'95}}$ gives the details of a case of

locomotor ataxy which was very markedly improved under the use of silver nitrate. Although the silver was given with much caution, and frequent and prolonged interruptions, argyria ensued. He concludes that no precautions will prevent the staining that follows the prolonged use of silver, but, except for this, silver nitrate appears to produce no injurious symptoms. At the same time, no drug had the same beneficial action upon the symptoms as had the silver nitrate. The case was under observation for more than twenty-three years. The ataxic and neuralgic symptoms gradually disappeared under the use of the drug. On its discontinuance they returned after an interval, but vanished again and again on resuming the nitrate. It is now more than ten years since the patient showed any definite symptoms of ataxia. He has none whatever at the present time, and the author thinks it may be fairly conceded that the discoloration of the skin has not been an extravagant price to pay for the benefits he has derived from the use of the drug.

Von Kahlden, $\frac{768}{\text{B.15,p.611,'95}}$ in the post-mortem examination of a young woman who had taken nitrate of silver for a long period for ulcer of the stomach, found the kidneys of a deep-gray color in the medullary region. In the parts in which the silver had been deposited, and only in those parts, the interstitial tissue was increased as much as six or eight times, and the canaliculi of the proliferated tissue were often compressed and their epithelium desquamated, while the proliferated connective tissue had undergone hyaline degeneration and calcification, the latter seeming to partially involve the epithelium. These alterations were, in the opinion of von Kahlden, entirely due to the argyria. The cortical substance was intact.

Silver Iodate.—See Iodic Acid.

Sodium.—Linossier, of Lyons, $\frac{211}{\text{May 19,'95}}$ in a study of the analgesic properties of bicarbonate of sodium, cites a number of cases in which the drug, in doses of 0.50 to 2 grammes (7¾ to 31 grains), quieted the pain supervening a few hours after a meal, even when there was marked diminution of hydrochloric acid. This result was obtained in widely different affections, as biliary lithiasis, gastralgia, neoplasm, and mechanical disorders of digestion. He concludes from these cases (1) that a painful attack coming on toward the end of the period of digestion and relieved by bicarbonate of sodium is not a proof that hyperchlorhydria or hyperacidity are the cause; (2) bicarbonate of sodium relieves pain coming on after meals, even when there is hypochlorhydria and diminished gastric acidity. This analgesic action is not durable, for in eight or ten days it is no longer effective.

Mathieu [100 Mar.26,'95] reports a case of cystitis due to taking large doses of bicarbonate of sodium. This inflammation became at times so intense that there was distinct hæmaturia. The author states that it is important to remember that an alkaline treatment may at times produce this result. Hayem, in commenting upon this case, states that large doses of alkalines, when the urine is itself not strongly acid, by making this fluid alkaline encourage the multiplication of the vesical microbes and thus set up an active cystitis.

Ferrand, [14 Mar.31,'95] who has also observed certain ill effects from the use of bicarbonate of sodium, explains the irregularity of its action by saying that it is not in reality an alkaline, but a neutral, salt. In order to exert an alkaline action it must become transformed into an alkaline subcarbonate of sodium by the elimination of part of its carbonic acid. As it is impossible to determine what quantity of carbonic acid is thus driven out in the intra-organic reactions, it is also impossible to know what proportion of the alkaline salt passes into the blood and the urine. He has therefore found it preferable to employ sodium subcarbonate directly, combined with the bicarbonate in doses of 0.25 to 1.00 gramme (4 to 15½ grains). He is able in this manner to estimate the quantity of alkaline salt introduced into the economy, and he has never had accidents from its use.

The chemical irritation of chloride of sodium upon the nerves of the intestinal tract has been investigated by C. Scherk. [1084 No.52,'94; 814 Feb.15,'95] Grützner has shown that common table-salt has the property of producing peristaltic movements. Other writers have demonstrated the fact that albumin injected into the rectum becomes completely absorbed when small quantities of table-salt are added, whereas without chloride of sodium no absorption takes place. Scherk attempts to solve the question how it is possible for the same chemical irritant to act antagonistically, and thinks that this difference is due to the chemical nature of the cells of the sympathetic, as compared with those of the spinal-nerve cells. The spinal cord and the axis-cylinders of the nerves have an alkaline reaction in the normal state, whereas the ganglia of the sympathetic have a neutral or slightly acid reaction similar to that of the gray substance of the brain. It is supposed that the degree of acidity is due to the production of lactic acid. Since globulins, but no albumins, are present in the brain, the amount of phosphorus should also be taken into consideration in determining the acidity. The cell-body of the nerve-cells is composed of two substantially different substances,—an oxyphile and a basophile. Nucleus and protoplasm are opposed to each other in reaction.

The reaction becomes modified according to the amount of globulin and albumin. It is hardly to be doubted that there is a difference between the spinal and sympathetic ganglia. It can thus be easily seen that the same chemical body may act differently upon the sympathetic-ganglia cells and the spinal ganglia, according to the difference in reaction.

Angelo Pugliese $^{1147}_{\text{July,'95}}$ states that chloride of sodium in doses of 0.23, 0.25, 0.27, and 0.5 gramme (4 to 8 grains) to the kilogramme ($2\frac{1}{5}$ pounds) has no diuretic action in the dog. It causes an increase in weight and raises the co-efficient of digestibility of protein. It lessens nitrogenous metabolism and leads to a retention of the sodium salts on the part of the tissues, but does not modify the elimination of the phosphates. It is thus apparently a moderator of metabolism.

Bunge having questioned whether chloride of sodium in large quantities would not produce toxic effects similar to those produced by analogous salts, J. Levi $^{505}_{\text{No.143,'95}}$ undertook a series of experiments on animals and ascertained that common salt in doses of 1 to 4 grammes ($\frac{1}{4}$ to 1 drachm) per kilogramme ($2\frac{1}{5}$ pounds) of body-weight caused renal lesions almost the same as those observed in nephritis. The action is exerted directly on the cells, which give the characteristic reaction of hyaline and granular degeneration. The author does not draw any conclusions as to the effects in man, who from heredity and habit can support the use of salt better than animals can; however, he believes that in a patient suffering from nephritis the influence of the salt ingested is added to that of the urea and aromatic substances, products of digestive fermentation, in favoring a renal alteration which otherwise might tend toward recovery.

Fluoride of sodium has been used with success by Tuffier, of Paris, in cystitis, and more recently by Blaizot, of Doulon-lès-Nantes, $^{3}_{\text{Mar.20,'95}}$ in the form of an aqueous solution of the strength of 1 in 100 or 1 in 200, as an antiseptic wash for the bodies of patients suffering from infectious disease, as a mouth-wash, as a vaginal injection in chronic or subacute vaginitis, and in the treatment of erythema in newly-born infants, in which it was very efficacious. It possesses the property of dissolving albuminous substances, which may possibly account for its good effects. It cleans the skin exceedingly well and gives rise to a delightful feeling of softness and coolness, both when employed externally and when applied to mucous surfaces,—as, for example, when it is used as a mouth-wash, for which it is eminently suitable.

Chucri Naamé, physician to the Municipal Hospital at Jerusalem, $^{6}_{\text{Mar.7,'96}}$ has used hypodermatic injections of phosphate of sodium

in the case of a woman suffering from syringomyelia, and the treatment was followed by some improvement in the patient's condition. The solution used was: phosphate of soda, 4 grammes (1 drachm); glycerin, 6 grammes (1½ drachms); and distilled water, 14 grammes (3½ drachms). Disappearance of pains, return of sleep, and diminution of articular thickenings are said to have taken place after a month's treatment, during which time fifty injections were given.

Gingeot [35 No.2,'95] makes use of 5 per cent. of sodium phosphate and 10 per cent. of sodium sulphate, in solution in distilled water, in neuropathic cases. He reports a single successfully treated case in which the diagnosis was onomatomania, agoraphobia, *folie du doute*, arithmomania, attacks with loss of consciousness, hysterical hemianæsthesia, and cranial malformation. The results were not due to suggestion, since various other methods had completely failed. The amount used is from 15 to 52 minims (1 to 3.25 grammes).

Sodium Arseniate.—See Arsenic.

Sodium Bromide.—See Bromides.

Sodium Nitrite.—See Nitrites.

Sodium Salicylate.—See Salicylates.

Solanum Carolinense.—This is regarded by Goss, of Marietta, Ga., [199 Oct.,'94] as a valuable remedy in epilepsy. To get the best effects from this remedy, a saturated tincture should be made of the crushed roots and leaves of *Passiflora incarnata*, and added to a saturated tincture of the seed-balls of the solanum, equal parts, covered with diluted alcohol for ten or twelve days, and then strained. From 30 to 60 drops of this is, in his hands, a positive remedy for the convulsions of children.

John W. Marcy [119 No.40,'95] has seen eight cases of trismus neonatorum, of which seven died; these were in a colored settlement where there was no attempt at cleanliness nor any attention paid to hygiene. The treatment was first a dose of castor-oil, which moved the bowels freely; then, as the kidneys did not perform their part, minute doses of pilocarpine hydrochlorate. For the spasmodic condition the tincture of solanum carolinense was given in 7-drop doses every three hours, then every two hours, finally increased to 15 drops every two or three hours, as was necessary to produce sleep, which would last two or three hours. With a good tincture of solanum, intelligent nursing, and good hygiene, he believes many more children might be saved.

Spermin.—See Animal Extracts.

Strontium.—Métral, of Geneva, [108 Nov.15,'95] proposes strontium carbonate, as yet unused in medicine, as a dentifrice. Its detersive

power is midway between that of calcium and magnesium carbonates, whose action is very slight, and that of pumice-stone, which can abrade the teeth if the enamel is of poor quality. Its reaction is slightly alkaline, which is an advantage, for acidity is the initial cause of caries. Its use is agreeable because its oily condition causes it to attach itself to the brush and to the teeth; so that it does not get into the throat and cause tickling, cough, or even nausea. It is very reasonable in price. The strontium salt appears to have a preservative and antiputrid action upon the tissues, liquids, and organic excreta. The salt can be used alone, but it is better associated with an antifermentable substance, as flowers of sulphur, as follows: Strontium carbonate and flowers of sulphur, of each, 37; essence of rose, 1. For a paste: Strontium carbonate, 12; flowers of sulphur, 6; medical soap, 27; essence of rose, 1; with equal parts of mucilage of acacia and glycerin sufficient to make a paste.

The salts of strontium are said to often cause a notable and rapid diminution of albumin. They are also indirectly useful by aiding digestion and acting as an intestinal antiseptic. According to the late Constantin Paul, $\frac{6}{\text{Jan.25,'96}}$ strontium is only useful in the parenchymatous forms. It is in cases of albuminuria, where it is useful to moderate the loss of albumin, that the use of strontium is specially indicated. The formula recommended by Gaucher and Gallois is

℞ Lactate of strontium, . . . 50 grammes (1½ ounces).
Water, ... 375 grammes (12 fluidounces).

Sig: Three tablespoonfuls—*i.e.*, 6 grammes (1½ drachms) of lactate of strontium—a day.

H. C. Wood, of Philadelphia, $\frac{2}{\text{Jan.5,'95}}$ calls attention to this drug as one likely to prove a valuable addition to every-day therapeutics. After using the lactate, iodide, and bromide of strontium very freely, he came to the conclusion that the strontium element materially modified the action of haloid bodies on the alimentary canal. This suggested the possibility that strontium might modify the action of salicylic acid; so he had a strontium salicylate prepared, and experimented with it upon dogs, determining that in therapeutic doses it elevates the arterial pressure, and that to depress the blood-pressure and circulation larger amounts of it per kilogramme (2⅕ pounds) are required than of the sodium or even of the ammonium salicylate. He afterward employed it largely in practice, and found, somewhat to his surprise, that in doses of 5 grains (0.32 gramme) it is one of the best of intestinal antiseptics, yielding better results than salol, naphthalin, and similar agents. In doses of 10 or 15 grains (0.65 or 1.0 gramme) it acts very de-

cidedly as a salicylate in gouty and chronic rheumatic conditions without producing disturbance of the stomach. It may be given in capsules. When large quantities are administered it produces cinchonism, but it seems to be less active and powerful in acute cases than is the ammonium salicylate. In chronic gouty conditions and lithæmia with intestinal indigestion it appears to be the most valuable drug that we have.

Strophanthus.—According to W. K. Wadleigh, of Hopkinton, N. H., $\frac{99}{\text{Aug.29,'95}}$ the physiological action of strophanthus may be said to be similar to that of digitalis, but there are some points of difference. Unlike digitalis, it has very little power to contract the small blood-vessels. As a diuretic it is much more sure and certain than digitalis. The effect produced by strophanthus is almost immediate, though not so prolonged as that of digitalis, and it very seldom produces any unpleasant stomach symptoms, no matter how long administered. Strophanthus may be used with more or less benefit in most cases where digitalis is indicated, but it is more especially in a few conditions in which digitalis is not so generally applicable that strophanthus finds its chief usefulness. Strophanthus is well adapted to the treatment of aged people, especially in vertigo caused by cerebral anæmia, in angina pectoris, in general anæmia accompanied by weakness of the heart, and in the so-called irritable heart characterized by palpitation and more or less pain.

The best preparation of strophanthus is the tincture prepared from the seeds, given in doses of 1 to 10 minims (0.065 to 0.65 cubic centimetre). It is rarely necessary to give larger doses than 5 drops three or four times a day.

Von Ziemssen $\frac{34}{\text{No.50,'94}}$; $\frac{15}{\text{Apr.,'95}}$ objects to the tinctures of digitalis and strophanthus on account of their unreliability, and believes that both of them should be struck out of the pharmacopœia. He uses strophanthus in the form of strophanthine, in the dose of $\frac{1}{64}$ grain (0.001 gramme) twice a day. This is not cumulative in its action, and, although not so lasting in its effect as digitalis, is the most preferable substitute. The tincture of strophanthus is conveniently prescribed in one of the compressed forms, and is not only reliable, but free from the nauseating effect the tincture sometimes has.

Strychnine.—La Housse, $\frac{1184}{\text{V.2,No.1}}$; $\frac{673}{\text{Sept.,'95}}$ from experiments on dogs, demonstrates that sulphate of strychnine, in large or small doses, causes slowing of the heart, without any preliminary acceleration, even when the heart is previously atropinized. The drug paralyzes, from the outset, the intra-cardiac motor centres, and also (though only in large doses) the terminal fibres of the vagus, probably without previously exciting them. The slowing of the

heart is not due, as Mayer states, to excitation of the moderating bulbar centre, but, in la Housse's opinion, to paralysis of the intra-cardiac motor centres.

Delezenne, of Lille, $^{410}_{\text{Oct.,'94}}$ from an experimental study of strychnine, finds the drug to be a strong dilator of the vascular plexus of the periphery, and to have an effect on the entire vasomotor apparatus similar to that of asphyxia or excitation of sensitive nerves.

According to C. G. Santesson, $^{273}_{\text{B.35,H.1,'95}}$ the action of strychnine on the terminal ramifications of the nerves in the frog increases slowly and progressively with the dose until a maximum is reached. The marked action on the spinal ganglia causes tetanic symptoms after small doses; after large doses, however, this action is overshadowed by the influence of the drug on the terminations of the motor nerves. E. M. Houghton and A. L. Muirhead $^{9}_{\text{June 1,'95}}$ conclude from their experiments that strychnine does not act on the cells of the anterior horn nor on the fibres descending in the cord from the brain to those motor cells.

They think, from their observations, that it is clear that strychnine-tetanus is not due to an action on the cells of the posterior-root ganglion. The part of the cord in which the alteration due to the strychnine occurs must be the connection between the posterior root and the cells of the anterior horn. Through the work of Golgi, Cajal, and others it has been recently demonstrated that these are not directly connected. Its stimulant action is located in the parts connecting the fibres entering the posterior horn with the end-brushes around the motor cells, neither the latter nor the cells of the posterior-root ganglion being necessarily affected by it; and the inference is drawn that the resistance to the passage of reflex impulses in the normal animal lies, therefore, in this part of the arc.

A case in which severe vesical spasm followed the administration of liquor strychniæ (B. P.), in 4-minim (0.25 cubic centimetre) doses three times a day for five days, is recorded by J. H. Spitzly, of Canonbury. $^{2}_{\text{Jan.15,'95}}$ It is the second instance of the kind coming under his observation.

Strychnine Iodate.—See Iodic Acid.

Stypticin.—See Cotarnin.

Sulphate of Magnesium.—See Magnesium.

Sulphonal.—Vanderlinden and de Buck $^{52}_{\text{'94}}$ have made a comparative study of the acetonic disulphones,—sulphonal, trional, and tetronal,—toxic agents of little strength, but diuretics of considerable energy. They are not, properly speaking, blood-poisons; if they modify the relative number of the red corpuscles, it is through

their lymphagogue properties, which cause hypoleucocytosis followed by hyperleucocytosis. Most of the phenomena produced by the drugs may be explained by an indirect modification of the physio-chemical properties of the blood and the tissues, as hydræmia and altered alcalescence. They give rise to but slight morphological changes from toxic doses.

W. Morro [69 No.34,'94] concludes that sulphonal is not destroyed in the organism, but is eliminated by the urine, from which it can be separated in a crystalline condition. The quantity eliminated increases day by day while it is administered, and, in general, if its administration is discontinued, three days must elapse before the quantity of sulphonal accumulated in the body will be eliminated. This drug, therefore, has a cumulative and prolonged action.

S. G. Webber [99 May 23,'95] recommends sulphonal especially for that class of patients who have no difficulty in going to sleep when they first go to bed, but wake in a short time and lie awake two, three, or four hours, or who may sleep no more that night. In these cases sulphonal does not interfere with the first early sleep of the night, and acts later; so that the patient does not wake at midnight as usual. Given in small doses, not more than 5 grains (0.31 gramme), he has also employed it with advantage to quiet restlessness in neurasthenia, hysteria, and mania.

An editorial writer [121 June,'95] states that sulphonal possesses properties which render it a very desirable hypnotic after abdominal operations. These are its safety, reliability, and freedom from depressing effects upon the circulatory and respiratory organs. There is a tendency among gynæcologists, generally, to restrict the use of opium and other narcotics as much as possible in the after-treatment of these cases. L. S. McMurtry, of Louisville, [2153 '95] quotes A. J. Skene, H. C. Crowell, and A. H. Cordier as all in favor of sulphonal in these cases, a dose of 15 grains (1 gramme) being usually sufficient to induce sleep.

Aside from its well-established position as an hypnotic, sulphonal has, according to an editorial writer, [121 Oct.,'95] other claims to recognition in the treatment of various diseases. A review of the literature shows that it also possesses antispasmodic, analgesic, antineurotic, diaphoretic, and antidiabetic properties. E. W. Bing [760 Apr.6,'95] gives the following excellent summary of these different actions: 1. As an antispasmodic it is useful in all forms of pain due to muscular contraction, as in colic, cramp of muscles, hiccough, asthma, tetanus, etc. 2. As an analgesic it has proved valuable in neuralgias, colic from gall-stones, pain following fractures or produced by nerve-pressure in any locality, either from inflammatory exudation or from transient causes, as cramp of

thigh-muscles in labor or in choleraic conditions, or those painful cramps in the calves of the legs seen in chronic alcoholism. 3. Its antineurotic action is well illustrated by its beneficial effects in epilepsy, hysteria, etc., in which it not only controls the attacks, but at the same time lessens the liability to them. The irregular and involuntary movements of chorea are likewise controlled. 4. Its antidiaphoretic action has been illustrated in the prevention of the night-sweats of phthisis, where a dose of a few grains will generally give a comfortable night without the discomfort produced by the sweat. It has been reported as beneficial in diabetes, diminishing the sugar and the excessive quantity of urine. The author further cites cases from his own practice in which these various properties of sulphonal are clearly illustrated. Among these one case is especially deserving of notice, since it demonstrates the value of this hypnotic in advanced cardiac disease. The patient who suffered from aortic regurgitation with loss of compensatory hypertrophy and from chronic bronchitis was much troubled with insomnia and a constant pain in the right side. Bromides and morphia were given to induce sleep, but both failed in their action or did not agree with the patient, while sulphonal in small doses gave a good night's rest and some relief to the pain.

Bresslauer and Joachim $^{169}_{\text{Aug.,'95}}$ find that sulphonal has certain disadvantages. Its action is slow, owing to its being nearly insoluble, and sleepiness rather than sleep is produced. After long use (1) vomiting and constipation, (2) ataxia of the lower limbs with paralysis and muscular spasms, (3) anuria, ischuria, and hæmatoporphyrinuria have been observed, some of these cases ending fatally. The authors have had no bad results since they made a rule never to give it for more than three days in succession, in doses not exceeding 2 grammes (31 grains) *pro die*, and to regulate the bowels and kidneys. It should be exhibited always in hot water (tea, etc.), in as good solution as possible.

Lafon $^{920}_{\text{Apr.29,'95}}$; $^{6}_{\text{May 18}}$ had under treatment a patient who, in 1891, passed 183 grammes (6.1 ounces) of sugar daily in his urine. In a few months all trace of glucose disappeared. For the last two months an average daily dose of 0.75 to 1 gramme (12 to 15½ grains) of sulphonal has been taken. A somewhat prolonged boiling of the urine with Fehling's solution invariably determines a characteristic reduction, although the polarisaccharometer reveals not a deviation to the right, but slightly to the left. That the reducing properties conferred on the urine by the ingestion of sulphonal are not caused by any transformation of that drug in the system is proved by the fact that the addition of a medicinal

dose (1 gramme—15½ grains—per litre) to urine quite free from sugar confers the same reducing power. The practitioner would thus do well to think of the sulphonal habit before he comes to the conclusion that the success of the copper test in any given case is indicative of the presence of glucose.

A fatal case of hæmatoporphyrinuria following the administration of sulphonal is recorded by L. R. Oswald, of Glasgow, [213 Jan.,'95] who states that about forty cases of a similar nature have been reported, all in women, and over one-half of them terminating fatally. From these cases it must be admitted that the hæmatoporphyrin in the urine in such quantities is directly due to the sulphonal. When the cases for its administration are carefully chosen its value as an hypnotic cannot be called in question; but when the bodily condition is poor and the patient anæmic it is difficult to see the value of a drug that has been shown to lead to the appearance in the urine, in variable quantity, of the decomposition products of hæmoglobin. In cases of *folie circulaire*, though it lessens the excitement, it seems to render the stage of well-being less bright and clear intellectually. As a temporary hypnotic for acute cases in private practice, and as a sedative for chronic and incurable cases of excitement, it is of great service; but it must be given with care and watchfulness, as symptoms of great severity may arise with little warning, and the life of the patient be endangered.

A case of sulphonal poisoning is reported by Marthen. [34 Apr.30,'95; 2 June 8] An insane woman, aged 39, was given sulphonal on account of great restlessness. In 2½ months she took 66 grammes (2⅛ ounces), 18 grammes (4½ drachms) being taken within the last 25 days, and 8 grammes (2 drachms) within the last 14. The drug was frequently intermitted. The patient became collapsed and had retention of urine. Later urine of a dark color was passed; it contained no albumin, sugar, hæmoglobin, or bile-pigment, and was unaltered by heating with acids and alkalies. The patient died in four days. At the necropsy, besides the lesions in the brain and meninges, the heart-muscle was of a grayish-yellow color and soft, the valves being intact; the lungs were œdematous. The capsule of the kidneys stripped readily, the surface was of a dark grayish-red color, the substance soft and containing much blood. In the bladder there was blackish-red urine. Under the microscope there was found, as in Stern's case, a wide-spread affection of the secreting epithelium of the renal convoluted tubes and of the ascending branch of Henle's loop-tubes. In addition, the diseased epithelium showed in its centrally-placed end a tendency to disintegration. The cardiac muscles showed fragmentation, but

how far this was due to the sulphonal could not be exactly stated. There were no noteworthy minute changes in the liver. The engorgement of the liver and kidneys was such as is frequently found in those dying of progressive paralysis of the brain. It is probable that the patient succumbed to a paralytic attack following upon the sulphonal poisoning.

Cases of severe psychical disturbance due to the use of sulphonal are recorded by Mendel $^{4}_{\text{Oct.15,'94}}$ and Frænkel. $^{4}_{\text{Oct.15,'94}}$

Suprarenal Extract.—See Animal Extracts.

Tannigen.—A limited trial of this drug leads F. H. Williams, of Boston, $^{99}_{\text{Nov.21,'95}}$ to think that it is an excellent astringent where such action is desired upon the intestinal mucous membrane. Since its advent into therapeutics it has been chiefly utilized in chronic affections of the intestinal canal, and has been recommended by Muller and Kunkler $^{283}_{\text{Nos.13,14,'95}}$ especially in the diarrhœa of phthisical patients. Recently Richard Drews $^{297}_{\text{Nos.35,36,'95;}}$ $^{109}_{\text{July,'95}}$ published the results of his experiments with tannigen in fifty-five cases of various intestinal diseases of childhood, which, in his opinion, demonstrate sufficiently the curative effects of tannigen upon the diseased intestinal canal, and prove that this remedy is efficient in a larger number of cases than those previously in use, such as calomel, benzoate of soda, bismuth, naphthalin, etc. Unlike Kunkler, Drews finds that the remedy is as useful in acute as it is in chronic catarrh of the intestinal canal. In acute enteritis and gastro-enteritis doses of 0.2 to 0.5 gramme (3 to $7\frac{3}{4}$ grains), three times daily, in connection with the regulation of the diet, effected a more rapid cure than any other method of treatment. The author advises that, after the disappearance of the catarrhal symptoms, the drug be continued for two or three days, to remove any remaining intestinal irritation and prevent recurrences. He states that tannigen is an excellent remedy in the intestinal diseases of childhood, producing a prompt cure by virtue of the astringent and antibacterial properties of tannic acid. Aside from this, it has the advantage over similar remedies of being tasteless, odorless, and of not disturbing the gastric functions, and of being perfectly innocuous, even when administered for a long time. For the latter reason it can be prescribed in knife-pointful doses for poor patients.

Moncorvo, of Rio Janeiro, $^{10}_{\text{Dec.3,'95;}}$ $^{673}_{\text{Feb.,'96}}$ has used tannigen in twenty-one cases of intractable diarrhœa, usually malarial in origin, and in many cases complicated by hereditary syphilis or tuberculosis. It was easily administered in julep and invariably well borne. Its action was prompt, certain, and effectual, both in chronic and acute diarrhœa. In the presence of antiseptics—such

as salol, salicylate of bismuth, etc.—it lost none of its power, and Moncorvo strongly recommends the combination in cases where the fermentation processes in the large intestine are very active.

Theobromine.—See Caffeine.

Thioform.—De Buck, [288 No.50,'95; 2 Feb.22,'96] after drawing attention to the excellent results obtained by Rogman [1160 Aug.23,'94] in ophthalmic surgery and corneal and conjunctival affections treated with thioform (basic dithiosalicylate of bismuth), praises its qualities in dermatology and medicine. Its value lies in its topical antiseptic, desiccative action, and in its forming a protective insulating layer for the parts underneath. All raw, weeping, or ulcerated surfaces heal rapidly under thioform, whether in the form of the pure powder or mixed with equal parts of levigated boric acid. It is indicated in all ulcerative skin affections and where epidermic softening exists. Internally de Buck found its constipating and disinfectant qualities manifest in three cases of acute enteritis; in a fourth chronic case it caused gastric irritation and did not influence the muco-sanguinolent stools. The dose of 2 grains (0.13 gramme) for an adult, ½ to 1 grain (0.03 to 0.065 gramme) for a child, in powder or mucilage, was perfectly well borne by the stomach. The author considers the drug suitable for internal use, since the dithiosalicylates are less toxic than the corresponding salicylic salts.

Thiol.—Dillon [826 Nov.,'94; 5 Mar.,'95] states that this drug differs from ichthyol in that it has no disagreeable odor; the internal administration is not accompanied by disagreeable gastric disturbance; used externally it does not more than slightly stain the clothing, and even this can be removed by washing. It seems to be especially curative in the different forms of eczema, acne, herpes, erysipelas, and other inflammatory processes. In contusions and subcutaneous hæmorrhages it possesses wonderful power in causing the absorption of the poured-out material. It has also been found useful in rheumatism.

C. Earle Williams, of Cambridgeport, Mass., [547 Oct.,'94] has used thiol in intractable forms of skin disease—such as eczema, psoriasis, and acne rosacea—with success, and as a local remedy in acute and chronic rheumatism. As a dressing for wounds, burns, and scalds, it also gave great satisfaction.

Thymol.—Prospero Sonsino, of Pisa, [6 Dec.,'94; 1 Jan.5,'95] gives an account of his success with this drug in the treatment of ankylostomiasis, in which disease it often acts like a charm, although in some rare cases he has had difficulty in ridding the intestines of the parasite by means of this remedy. In one case daily doses of 60 grains (4 grammes) brought away in all thirty-one ankylostomata, and yet

the stools contained eggs in as great abundance as before the thymol treatment. The author thinks that a certain number of worms might still have been hidden in the walls of the intestine or under the folds of the valvulæ conniventes in such a manner that the thymol passed them without displaying its deadly action. Such rare cases, however, should not detract from the reputation of thymol as a remedy in ankylostomiasis, though its efficacy does not warrant the profession in proclaiming it as a remedy against all other intestinal parasites without adducing positive proofs in the case of each species of worm; for while it, as a rule, causes the expulsion of ankylostomata, it acts only exceptionally on other worms, and in the greater number of cases it altogether fails to effect their expulsion. With regard to the administration of thymol, the author thinks that the best way is to give it in powder inclosed in wafers or cachets. Tabloids are not of any advantage, because they must be given in numbers too great for the convenient administration of doses of several grains, and the direct contact of the drug with the mouth may prove hurtful, as it is an acid.

Thyroid Extract.—See Animal Extracts.

Tolu, Balsam.—See Balsams.

Traumaticin.—See Ichthyol.

Trinitrin.—See Nitroglycerin.

Trional.—H. A. Hare [80, May 15,'95] says the action of trional is much the same as that of sulphonal, but the advantages claimed for it are that it is a more powerful hypnotic, that it may act where sulphonal fails, that its action is more immediate, and that unpleasant after-effects are fewer or absent altogether.

Boudeau [2000 '95; 2, Oct.5,'95] made some experiments as to the hypnotic effects of trional in 30 cases of ordinary illness. The doses used were sometimes small (1 to 2 grammes—15½ to 31 grains); sometimes larger (2 to 4 grammes—½ to 1 drachm); the weaker doses particularly produce the hypnotic effect, while the stronger have a sedative action in cases of irritation. The drug was given in cachets, a hot liquid being swallowed immediately after it. The average duration of sleep produced was about seven hours; it came on from three-quarters of an hour to an hour after the administration of the drug. The sleep was quiet and easily interrupted, but quickly renewed. Trional was especially successful in insomnia due to pain; no serious symptom followed the taking of the drug. In 4 cases it seemed to cause nightmare, and in 4 others there were some passing disturbances on awakening,—such as nausea, headache, vertigo, uncertainty of movements, and tinnitus. In 2 cases sweating without apparent cause was noted. The only instance in which the drug failed was in a woman suf-

fering from cardiac asystolia. The author concludes that trional is a reliable hypnotic; that in therapeutic doses it has no effect on the circulatory, respiratory, or digestive apparatus, while its action on the temperature and on the secretions is insignificant. Moncorvo, of Rio de Janeiro, [10 Sept.3,'95] has investigated the therapeutic effects of trional in children. He first tried it in the insomnia of neurotic children and in sucklings suffering from digestive disturbances. Encouraged by the prompt and sure effect of the drug and by its harmlessness, he tried it in the insomnia common in the exanthemata, particularly in the first two stages of measles, smallpox, and scarlatina. The drug also acted satisfactorily in the case of children suffering from malaria, in which insomnia is common as an early symptom. Given in small doses of 0.20 to 0.25 gramme (3 to 4 grains) before bed-time in such cases, trional almost invariably succeeds. It was also used with much advantage as a means of subduing cerebral excitement in pernicious cases of malaria. The insomnia, often so troublesome in cases of cerebral irritation, was always mitigated or prevented by trional given in a dose usually not exceeding 0.50 gramme (7¾ grains) half an hour before the time when it was desired to produce sleep. In 2 cases of tuberculous meningitis the sedative action of trional on the brain was marked. The drug was also tried with satisfactory results as a remedy for the psychical disturbances of cerebral sclerosis. In one case, that of a girl, aged 9, who since the age of 3 had been the subject of right hemiplegia, probably due to left cerebral hemiatrophy, trional in a daily dose of 0.50 gramme (7¾ grains) had an extremely good effect, and although the treatment was continued for several weeks no disagreeable by-effect was noted. The drug was also used with advantage in the insomnia which frequently accompanies subacute or chronic tuberculosis in young subjects. Moncorvo found trional least successful in insomnia accompanying painful affections,—such as diseased bone and neuralgia. The drug was well borne, no disagreeable effect on respiration, circulation, or cerebral activity being observed. It was given, as a rule, in hot, sugared milk, by which means its somewhat bitter taste was almost entirely masked. In older children it was given in cachets, a little hot tea or milk being swallowed immediately afterward. The dose varied from 0.20 to 1 gramme (3 to 15½ grains) in the twenty-four hours.

Claus [57 No.45,'94] has also found the drug of value in the sleeplessness of children, though he regards it as contra-indicated in the insomnia of organic nervous disease, such as meningitis, etc. It is especially useful in chorea, convulsions, and night-terrors.

M. A. Clark, of Barnesville, Ga., [81 Feb.,'95] has used it for the

insomnia of dyspeptics, overtaxed school-girls, and others with equal satisfaction. He has never found any unpleasant results or any tendency to continue to use the drug, although he has watched carefully for both. He uses it in all diseases, and with patients of all ages, where an hypnotic is indicated.

T. Beyer, of Vienna, [650 No.25,'95; 170 Nov.,'95] states that, in cases of insomnia due to moderate bodily disturbances, trional may be employed with advantage, though in severe cases it cannot replace morphine.

Venanzio [2 Jan.5,'95] remarks that trional is in every sense an hypnotic. It has no action on the pulse, respiration, reflexes, etc. It is superior to most of the other hypnotics, even having advantages over sulphonal and tetronal; but it stands, according to the author, below chloral, which is the sovereign hypnotic. It is not to be compared, of course, with duboisine, which is a most powerful sedative rather than an hypnotic. The author gives trional in honey, mental patients taking it well in this way. He usually gives 1 gramme (15½ grains), but sometimes 1.5 to 2 grammes (23¼ to 31 grains). It begins to act in a few minutes, and eventually undisturbed sleep supervenes. No headache or other unpleasant symptoms are noted after it. Trional is most useful in the insomnia of neurasthenics accompanied by depression.

Vogt [296 No.21,'94] also concludes that trional is preferable to its congener, sulphonal, in that it acts more promptly and produces a calm sleep with a normal awakening. If the drug, taken two evenings in succession, does not produce a slight effect, it is useless to continue it. The treatment should be stopped in every case at the end of five or six days. If this is done there is no fear of poisoning, and generally during this time the patient is relieved of his insomnia.

Goldmann [116 No.11,'94; 673 Mar.,'95] regards this drug as the most desirable of hypnotics, owing to the rapidity of its action, which is without any bad effects. It should always be given with a considerable quantity of hot fluid. If not carefully administered hæmatoporphyrin may appear in the urine, which should be carefully watched. Bicarbonate of sodium (4 to 6 grammes—1 to 1½ drachms) should be given in case the urine becomes cloudy, and the patient should drink large quantities of aërated water. The dose of trional should not exceed 2 grammes (½ drachm); usually 1 or 1.5 grammes (15½ to 23¼ grains) will be sufficient. It should be suspended from time to time, and citric acid given to facilitate its elimination.

Spitzer [8 No.23,'95] believes that trional may be used with benefit in patients with lung and heart disease. Sleep is produced quickly

after the administration of the drug and continues during the following hours. In some cases there is a tendency to sleep during the next day, especially in the morning. In none of his cases could he discover any detrimental action on the heart or lungs, but noticed in some a slight disturbance of the digestive tract, which may have been only an idiosyncrasy. It approaches morphia in its effects and may often be substituted for it.

Chas. H. Springer, of Cleveland, $\frac{19}{\text{Sept.22,'94}}$ finds trional of great value in insomnia and alcoholism. He has observed that in cases of the latter in which he used the drug the patient did not have that longing for his morning drink always noticed in other cases, nor the "hollow" feeling in the stomach. He has also noted that morphine or opium retards the action of trional.

L. Galliard $\frac{14}{\text{Mar.17}}$; $\frac{673}{\text{Apr.,'95}}$ prescribed trional to forty patients, giving a uniform dose of 1 gramme (15½ grains) daily in unleavened bread to avoid the disagreeable taste of the drug, which is soluble only in a large quantity of hot-water. In one case he administered it in a rectal injection. Five of the patients showed themselves refractory to its influence, but in the other thirty-five it was at least partially successful. Sleep was obtained in twenty or twenty-five minutes and lasted almost all night. He observed no accidents; in some cases there was nightmare, or vertigo, slight headache, or nausea on awakening. There was no circulatory, gastro-intestinal, respiratory, nor urinary disturbance. He had not observed hæmatoporphyrinuria, although none of his patients had taken more than six consecutive doses. Raymond had analyzed the urine of a patient who had taken daily doses of 1.50 grammes (24 grains) of trional for a period of five weeks, and had found red globules, a small quantity of globulin, no sugar, but a reducing body deviating to the left 0.4 to 0.5 degree (*lævogyre*). Galliard considers trional especially indicated in neurasthenic cases, on account of its having no other action than a purely hypnotic one.

Bresslauer and Joachim $\frac{169}{\text{Aug.,'95}}$; $\frac{2}{\text{Sept.21,'95}}$ state that trional acts excellently in neurasthenic insomnia, chronic and periodical mania, etc. The authors (contrary to the experience of many) have had good results also in melancholia and hallucinations accompanied by violence, even 0.5 gramme (7¾ grains) having a sedative effect. Experiments have shown that animals can be poisoned in exactly the same way as with sulphonal, and in man up till now four cases of poisoning (two fatal) have been recorded. Its action is cumulative and delayed from fifteen minutes to three or more hours after administration, but this is not nearly so marked as with sulphonal. Sleepiness continues in some cases during the next day and even night. Symptoms of poisoning were observed

in a number of cases after continued administration,—namely, dullness, giddiness, headache, anorexia, obstinate constipation, ataxia of the lower limbs, and sometimes oliguria or even strangury.

Reinicke $\frac{69}{\text{Mar.28,'95}}$; $\frac{1}{\text{Aug.31,'95}}$ gives an account of a case of trional poisoning. Three other cases have been recorded, but the following is distinguished from these because the author took all necessary precautions to prevent accidents: The patient was a woman, 26 years old, who suffered with hallucinations and obstinate insomnia. She had taken the trional from October 15, 1894, to January 29, 1895, with a few interruptions. On the 30th of January she complained of headache, vertigo, and epigastric pains. Her temperature was 101.6° F. (38.7° C.). A microscopical examination of the urine showed nothing abnormal. On the following day her condition became aggravated and she could not pass urine. On the 1st of February, however, she passed 250 cubic centimetres (8 fluidounces) of blackish urine, very dense and full of sediment. The examination of the urine showed the existence of a certain amount of albumin, and the microscope revealed red and white globules and numerous hyaline and granular casts. Reinicke could not say what product of decomposition had caused these alterations in the urine. Quincke seemed to have proved that the peculiar coloration in the urine in cases of trional poisoning was not due to hæmatoporphyrin.

Tuberculin.—Theobald Smith, of Washington, $\frac{1}{\text{Feb.23,'95}}$ observed local vascular disturbance of the fœtus, probably due to the injection of tuberculin in the pregnant cow. In one animal that had received two injections of tuberculin on consecutive days, probably on different sides of the neck, twin fœtuses showed hæmorrhage associated with vascular injection having its focal point at a place corresponding to the seat of injection in the mother. In one fœtus both sides were involved; in the other, only the left. In the second case the injection was made only on the left side, and the fœtus, examined four days and a half later, showed a distinct blood-red, probably hæmorrhagic, spot at the corresponding region. He has since examined a small number of fœtuses of more advanced age and several of nearly the same age, but found no lesions of the kind. It is probable that a definite combination of certain conditions must exist before this remarkable effect may be actually seen. These are a certain age-limit of the fœtus, a certain time-limit between the tuberculin injection and the autopsy, and perhaps a certain impressible condition of the mother. The disturbance being vascular, the lesions noticed may, in course of time, entirely disappear.

Charles Denison [1 Aug.3,'95] cites three instances in which Koch's tuberculin was used in tubercular affections which were not pulmonary,—tubercular cystitis and tubercular hip-joint disease. From the improvement noted in these cases he concludes that there is ample justification for its use in the positive, although sometimes necessarily more or less transitory, immunizing influence.

Turpentine.—Sasse [116 Feb.,'95; 2 Apr.13,'95] states that, though some authors have used oil of turpentine successfully in hæmaturia and cases of hæmoptysis, its valuable properties in this respect are not sufficiently known. He first used it with considerable success after extraction of teeth, a severe instance of hæmorrhage yielding to no other remedy. Thus emboldened, he applied it to the gums and used it as a mouth-wash in an obstinate case of scurvy complicated by hæmaturia. The oil was used undiluted, and also administered internally in small doses. He was equally successful in curing a patient suffering from hæmorrhage, the bleeding being from the bladder. An emulsion of the oil was given hourly. The patient's general health does not appear to be influenced by the drug. Finally, Sasse mentions the success obtained by a colleague, who at his instigation also employed turpentine as an hæmostatic after extractions.

Terebene is so useful a remedy in some forms of chronic bronchitis that it is important to note any condition in which the exhibition of the drug may be harmful to organs which it is undesirable to stimulate. Charles W. Chapman, of London, [6 June 8,'95] reports the case of a man, aged 58 years, who had been subject to gout for many years and to bronchitis for the last eight winters, cough and wheezing being nearly always present, and who sought advice owing to the cooing in his chest disturbing his rest at night while on a visit to the sea-side. As the symptoms showed no signs of abating, medical treatment was suspended, and the patient was directed to take simply 10 to 15 drops of terebene on going to bed and to repeat the dose at intervals if required. On his returning to town Chapman examined the urine and found it to be of the same low specific gravity noticed for a long time,—1004; but in addition there was a distinct cloud of albumin. Thinking that the terebene might be responsible for the albuminuria, he directed that the use of the drug should be discontinued for three days, when the urine was found to be absolutely free from albumin, subsequent examinations giving a like negative result.

Urtica Urens.—See Galega.

Valerianate of Ammonium.—See Ammonium.

Viburnum Prunifolium.—Theodore Sherman, [2 Dec.21,'96] at the British Medical Association, discussed the botany, chemistry, and phar-

macology of this drug. He uses the liquid extract evaporated down and given in capsules. The drug seems to diminish reflex pain, to lower blood-pressure, and to act as a uterine sedative. It is of great value in certain forms of dysmenorrhœa, in threatened abortions, etc. In the discussion William Craig said he had for years maintained its pre-eminent value in abortion. A. R. Simpson had frequently used it with good effect in certain cases of early abortion and in dysmenorrhœa of non-obstructive forms. Haultain thought it was a direct uterine sedative, and was of value in the first stage of labor, in after-pains, in dysmenorrhœa with clots, and in abortion where there were pain and a little hæmorrhage.

Holmes $^{61}_{\text{Oct.27,'94}}$; $^{80}_{\text{Feb.15,'95}}$ has used viburnum prunifolium to prevent abortion, to control menorrhagia and metrorrhagia from uterine fibroid or endometrial fungosities, as a sedative in ovarian congestion and its ordinary consequences, etc., and in almost all kinds of pelvic irritation, congestion, and inflammation.

VENESECTION.

J. Hamburger $^{265}_{\text{B.9,p.241,'95}}$ has determined, from experiments on horses, that the osmotic tension of blood-serum remains the same each time the blood is collected in the course of fatal bleeding, although the blood undergoes a progressive dilution on account of the resorption of interstitial lymph. The osmotic tension may be determined by the lowering of the point of congealing.

Schubert, of Berlin, $^{319}_{\text{Sept.28,'95}}$ has performed venesection 1200 times in 485 patients, and believes it to be indicated, above all, in pneumonia and in affections of the lungs associated with high fever. It is also indicated in acute cardiac diseases, in acute cerebral hyperæmia, in acute nephritis, gout, and influenza. The chief indications, as regards chronic diseases, are chlorosis and anæmia; it is also useful in chronic muscular and articular rheumatism, the lancinating pains of tabes dorsalis, migraine, neuralgia, epilepsy, eclampsia, hæmorrhages from the nose, lungs, and hæmorrhoidal veins, and chronic cardiac and renal diseases.

Venesection is not in favor in Austria. Practitioners of the modern school have never seen it performed during their student-years, and there are only a few old surgeons who regard it as a powerful means of combating all feverish processes. One of the most eminent Austrian physicians, von Jaksch, $^{88}_{\text{Nos.32,35,'94}}$; $^{6}_{\text{Oct.12,'95}}$ however, advocated the use of venesection at a meeting of the Medical Society of Prague, pointing out that its great therapeutic value consists in the immediate decrease of the blood-pressure and in the diminution of the number of substances which carry oxygen.

It may be employed in pneumonia, but only as a last resource, when the system is overcharged with carbonic acid. From 200 to 300 cubic centimetres (6½ to 9½ fluidounces) of blood may be withdrawn, and then a sterilized solution of common salt, such as is used in physiological experiments, injected subcutaneously. The success of this treatment is manifested by the disappearance of cyanosis. Phlebotomy may also be resorted to in uræmia, provided that the patient's blood is normal as regards red corpuscles. Cupping may be employed to relieve the symptoms of carbonic-acid poisoning and the pain of pneumonia, being less injurious than narcotics. It will sometimes calm the severe pain of pleurisy, and has also been known to effect improvement in cases of cyanosis and dyspnœa caused by emphysema and heart disease.

George C. Laws [80 Dec.15,'94] thinks that the rule is universal that, in all cases of inflammation so serious from degree or position as to involve danger to life, bleeding should be employed in the early stages, unless forbidden by general debility or the low grade of the fever.

Sir Benj. Ward Richardson [38 2d Q.,'94-'95] states that, in deciding on treatment in uræmic and dropsical forms of coma, the temperature should be considered. If it be above the normal, there is no need for a moment's hesitation about the performance of venesection; if the temperature be normal, although some dropsy be present, there need be little hesitation about bleeding; but if the temperature be below the normal with dropsy, then venesection could not be expected to render the least service, but might indeed be a dangerous process by inducing a superfluous flow of water into a blood already attenuated. The point of practice in such a case is to draw off the effused fluid upon the pressure from which the coma is dependent.

William M. Holladay, of Hampden Sidney, Va., [81 July,'95] recommends blood-letting in asthma, heart disease, puerperal eclampsia, and pneumonia.

Thomas H. Manley, of New York, [176 Sept.,'95] in describing the manual of this operation, points out a few things that are indispensable in order to accomplish the desired result: 1. The patient should be placed in the sitting posture. 2. The arm should be thoroughly cleansed, and a bandage applied over the arm, six inches above the elbow, with sufficient firmness to compress the surface-veins, but not constrict the arterial current. 3. When the vein has been mapped out, the point of a thumb-lancet should be sent well into the vessel, taking care to enter at sufficient distance above the bicipital fascia to clear the brachial artery.

In all cases it is important that four fundamental conditions be observed, or our efforts are quite certain to be abortive: 1. The practitioner must present a cool, quiet bearing, proceeding with deliberation and ease till everything is ready. The patient's forearm should be pushed away from the body, the lancet concealed from the patient, and its point sent suddenly into the tissues. A nervous, inexperienced operator is quite certain to bungle; the patient becomes alarmed and no blood will flow. 2. The quick insertion of the broad-pointed lancet is important, for then there is no pain, as all at once, with the plunge of its blade, there is a gush of blood and the vent is free. 3. The opening should be ample and the stream full, in order that the effect be prompt and positive. 4. The blood should be allowed to flow until symptoms of syncope are pronounced; the blanched features, giddiness, nausea, and sinking of strength warn us of anæmic collapse. At this stage the patient should be placed in the dorsal decubitus and the face moderately douched with cold water. Reaction sets in after a few moments. Now, the whole state is changed; marked sedation, tranquility, and rest come to the pain-worn patient. After bleeding, a simple compress over the incision in the vein, under a bandage, is all that is required, for the facility with which wounded veins unite, while the circulation courses through them, is most extraordinary.

MASSAGE.

F. Churchill, $^{2}_{\text{Dec. 21, '95}}$ in an interesting paper on the subject of scientific massage, states that, while approving generally the accustomed methods of dry massage by kneading, rolling, and local friction, he does not object to the employment of local remedies. The inunction of soothing liniments in certain obstinate and painful cases greatly facilitates the employment of other methods of treatment. The cutaneous tissues, contracted and hardened by long confinement, become supple and elastic, and the deeper structures participate in this. He often orders the liniment to be warmed at the fire before use, as this helps to give a glow to the vascular system, is a sedative to the cutaneous nerves, and favors inunction to the deeper structures. For the efficient carrying out of the "movement cure" it is necessary to abandon the use of machines and apparatus which the patient is taught to rely upon for communicating external activities to his torpid muscles. By skillful, well-tutored, and firmly-applied manipulation it is possible to arouse the slumbering activities of vital organs by energizing the natural motive powers of the individual, so that the confirmed invalid becomes gradually self-reliant, and is kept within the range

of undue fatigue. By scientific massage is to be understood the application of well-trained fingers to the groups of muscles or tissues requiring especial manipulation, endeavoring to promote the flow of blood and lymph-plasma, and to accelerate the metamorphosis of tissue in the disorganized part. Much depends upon the patience, skill, anatomical knowledge, and proper appreciation of the actual mischief requiring to be rectified by systematic daily application of massage. The manipulator must have a soft, warm, and well-padded hand, carefully trained to use the needful amount of pressure required in each case, according to the properly-defined prescription of the medical attendant. There must be accurate knowledge of the anatomical situation of the attachment of muscles, the course of the arteries and veins, and the situation of the nerves. The masseur should have a general idea of the structure and function of the alimentary canal, especially the course of the colon and the situation of the liver and gall-bladder. He should be warned of the danger of using massage without skilled directions as to the details of manipulation required. The effect of massage was to improve the circulation; to increase the nutrition of the part; to remove accumulations, adhesions, and inflammatory products; to promote health and vigor; to increase the appetite, and in so doing to act as a general tonic to an enfeebled constitution; to increase the electrical contractility of muscular tissue; to raise the temperature of the body, and to increase the flow of lymph in the lymph-channels and glands. When one remembers the wide distribution of the sympathetic nerves, the regulating control which they exercise over the abdominal organs, the large splanchnic nerves being situated at the back of the abdomen, contributing branches of communication to the muscular coats of stomach and bowel, it cannot be doubted that the influence of these nerves upon the hollow viscera and their contents must be largely increased by inhibitory and excitomotor action, when stimulated to contract by efficient massage. For dyspepsia and functional disorders of the alimentary canal massage may be applied with advantage, as it increases the flow of gastric and biliary secretions. It is eminently successful in the case of anæmic and hysterical girls with sluggish circulation and indolent habits; also in infantile paralysis, gout, rheumatism, writers' cramp, etc. In the Weir-Mitchell treatment, which is designed to promote active nutrition of internal organs, scientific massage is an essential part of the treatment. Patients suffering from corpulence and what is now known as neurasthenia are greatly benefited by massage over the back, spine, and abdomen. In cases of neuralgia of the spine, face, and limbs the

local pain was much relieved by *tapottement* or *pétrissage* over and around the painful part.

[The foregoing is inserted as a general guide for those of our readers who employ masseurs and masseuses. The latter should at least be familiar with the points given to merit the confidence of their employers. See vol. ii, sec. F, pages 118 to 120.]

Carlo Colombo [376 Feb.1,'95; 15 Apr.,'95] has made some researches on the physiological effects of massage on the glands of the body, excepting the sweat-glands. Animals were chosen for all the experiments. As regards the stomach, the secretion increased from the normal of 15 cubic centimetres to 40, periods of two hours being chosen for each observation. The result was most obvious after massage had been practiced about fifteen minutes. Among the salivary glands the submaxillary is the most sensitive, five minutes of friction sufficing to rouse it to greater activity, and the liquid that results has the same characters as that flowing after stimulation of the chorda tympani. As regards the kidneys, the first series of experiments showed the excretion became most intense after ten minutes; the second investigation was intended to determine the quality of the fluid flowing respectively from each ureter, massage being practiced over one lumbar region only. As a result of the friction there was diminution of specific gravity, increase of epithelial elements, and during the first five minutes slight albuminuria. The secretion from the testicles was examined at its passage through each inguinal canal. Not only was the quantity increased twofold, but the fluid also contained abundantly the products of the testicle. Friction over one lachrymal gland led to increased activity of both. Thirty minutes of energetic massage sensibly increased the weight and amount of perspiration subsequently produced, but, the potash-salts and urea being deficient, the density was lessened. Finally, as regards the liver, twenty-five minutes of surface friction produced the same effect as deep manipulation during ten minutes, the best result being obtained by the combined operations during ten minutes. As a general conclusion, the author states that massage leads to an increased glandular flow, from which it must follow that the epithelial cells are roused to greater activity, and that the inflow of blood, hence also the filtration of serum, is assisted.

T. Lauder Brunton and F. W. Tunnicliffe, [178 Dec.15,'94] after giving a detailed account of their experiments on the effect of massage on the circulation, sum up the results as follows: 1. During the massage of muscles the flow of blood through them is increased. 2. Immediately after the cessation of massage, an accumulation of blood occurs in the massaged muscles, which is rapidly followed

by an increased flow through the muscles. 3. The massage of a considerable muscular area causes at first a slight rise in the general blood-pressure, which is followed by a fall that in some cases amounts to a fifth of the initial blood-pressure.

Kümmerling [84 Nov.30,'95; 2 Jan.18,'96] claims to have discovered an improvement in the technique of abdominal massage. He first carefully ascertains the relations of the abdominal viscera by palpation and percussion. A rectal examination is also made both for diagnostic purposes and to cause a reflex effect on higher parts of the bowel by irritation of the rectal mucous membrane. The patient is then placed in the right lateral position in order that the descending colon may conveniently be manipulated. The thumb and forefinger of each hand carefully press through the skin and fat till the gut is reached; the finger-tips of both hands are then laid over corresponding points of the intestine and powerful "sawing" movements, often causing pain to the patient, are made from above down for about five minutes. He is then placed on the left side and the procedure repeated from below up upon the cæcum and ascending colon. The massage is finally directed to the transverse colon and small intestine. The patient assumes the knee-elbow position and the parts are rhythmically kneaded by the finger-tips or, if there is much fat, the closed fists. The whole sitting lasts fifteen minutes, and Kümmerling describes its effect as being extraordinarily superior to that of any other method. The great disadvantages of the abdominal massage in the recumbent posture are the difficulty of gripping the gut in the fingers and the fact that only its superficial portions are stimulated, peristalsis in the remainder being only obtained reflexly, if at all.

EXPERIMENTAL THERAPEUTICS.

Alimentation.

The influence of meat-bouillon upon the gastric functions has been studied by N. I. Kozminykh, of St. Petersburg, [2043 '95] who finds that the contents of the stomach are greater after the ingestion of bouillon than after a test-meal, the secretion of the gastric juice and the absorptive and motor power being increased. Bouillon appears to favor the action of the gastric juice upon the foods taken at the same time.

Von Ziemssen [113 No.52] recommends freshly-expressed meat-juice as a food in disease. Those patients who find the bloody taste repugnant may easily have this disguised by adding a little brandy and extract of vanilla with sugar, and upon freezing it an agreeable

ice-cream is formed, which is eaten by the most fastidious with pleasure. In this manner administered there will be no difficulty in giving a patient at least 200 grammes (6½ ounces) of the juice, and, indeed, even to those patients who have a disgust for all other forms of food or who cannot retain food, as typhoid cases.

Leube [2006 '95; 2 Dec.7,'95] was led, by observing the harmlessness of the hypodermatic injection of even large quantities of olive-oil (used as a menstruum for camphor), to make some experiments on dogs to ascertain whether fats injected under the skin would be absorbed and assimilated. He found that this was the case, the animals having markedly increased in weight. Chemical examination afforded evidence that the fat accumulated about the viscera and in the mesentery was approximately of the same composition as that of a dog fed in the ordinary way,—that is, that the butter-fat had not merely accumulated in the body, but had been truly assimilated. Much butter, however, remained unchanged under the skin.

F. F. Skorodümoff, of St. Petersburg, [586 No.4,'95; 26 Apr.1,'96] conducted a series of experiments on 10 healthy young men to elucidate the influence of milk diet on the processes of intestinal putrefaction. In each instance the observations lasted twelve consecutive days, and were divided into three stages of equal duration. In 6 of the cases the diet during the first and third periods consisted of butter, bread, milk, butchers' meat, tea, sugar, and salt ("the laboratory diet"), while during the middle stage the subjects were allowed only milk and tea with sugar (4 cases), or milk, tea with sugar, and white bread. In the remaining 4 cases the subjects were kept on the "laboratory diet," the only modification being that in 2 of the cases no milk was allowed during the first and third stages, while in the other 2 the food-article was excluded during the middle period. The nitrogen of food and urine was determined after Kjeldal-Borodin's method modified by Korkünoff, Kürloff, and Shtcherbak; nitrogen of urea after Borodin's method; sulphur of urine after Salkowski's; sulpho-ethereal acids of urine after Baumann-Salkowski's; leucomaines of urine after Pœhl's.

The outcome of Skorodümoff's research may be briefly stated as follows: 1. Under the influence of milk diet of all kinds the putrefactive processes are invariably lowered. 2. The proportion of suboxidized products and leucomaines in the urine decreases most markedly in the case of exclusive milk diet. 3. The proportion of sulphur in the urine decreases in the case of exclusive milk diet, but rises in the case of mixed milk diet of all kinds. 4. The proportion of neutral sulphur in the urine increases in all forms of milk diet. 5. Absolute quantity of sulpho-ethereal acids in the urine lowers most markedly in the case of exclusive milk

diet. 6. The body-weight somewhat sinks. 7. When kept on an exclusive milk diet or on a milk-and-bread one, most of the patients complain of slight lassitude and increased frequency of micturition, and show some tendency to constipation (the stools usually occurring every other day, the fæces sometimes being dry, of a grayish-yellow color, etc.).

Gaucher and Gallois [35 Dec.21,'95] state that when milk is badly digested, particularly in uræmia, it is often because the chemical operations within the stomach indicate an excess of pepsin. In this case kephir gives good results. If it is to be absolutely substituted for a milk diet, that which is slightly fermented only should be recommended, as it contains less alcohol and is therefore a wholesome remedy in the gastro-intestinal troubles of nephritis, and especially of interstitial nephritis. As kephir is a diuretic, it may act advantageously in other uræmic manifestations. If it is unpleasant to the taste, Hayem recommends diluting it with a little Seltzer water or adding sugar to it.

Pugliese [673 Feb.,'96] reports the results of his experiments concerning the action of certain alimentary substances on the cardiac and respiratory functions. Sugars, fats, peptones, and gelatin considerably increase the number of heart-beats, so much so that their number may be raised from 60 to 120. This increase is apparent one hour after the ingestion of the aliments. Respiration is not affected by any of these substances with the exception of gelatin, which has a very decided action and may increase the number of respirations to double the normal number. Cane-sugar and glucose, in large doses, have sometimes had a similar action. Pugliese thinks that these substances act directly on the myocardium, as demonstrated by Albertoni in the case of glucose.

In a paper on glucose and cane-sugar as foods E. H. Bartley [1 Apr.20,'96] states that glucose—either in the pure state, as invert sugar, or mixed with cane-sugar—being a daily article of diet, it is an important question to determine whether there is a difference in the effects of this sugar and cane-sugar. Since glucose has become a cheap commercial article it has found numerous uses in the arts and as an article of diet. Several foreign chemists—notably, Nessler, Schmitz, and Landbeck—claim to have found in commercial glucose an unfermentable substance having injurious effects. The author studied the differences in the action of cane-sugar and dextrose (or invert sugar) when taken as food. Cane-sugar is a natural food, while dextrose is exceptionally so. The latter undergoes lactic fermentation much more readily in the stomach and duodenum than the former, and interferes more with salivary and gastric digestion. Dextrose is more

rapidly absorbed than cane-sugar, owing to the gradual formation of the former from the latter during absorption. This rapid absorption may overtax the liver and oxidizing process in the tissues, preventing the proper destruction of waste-products of cell-action. Clinical observations coincide with these deductions. The only doubt to be raised in this respect is as to how far the author making the observation has been able to separate the effects of the overeating of cane-sugar from those believed to be due to invert sugar or dextrose.

John M. Francis $\frac{1019}{\text{No.5,'95}}$ states that malt-extract contains not starch, but dextrin, soluble starch and maltose, small quantities of albumin, gum, and inorganic salts, and, more important than all, the portion of diastase which was not consumed by the starch or destroyed in the process of evaporation. If it is marketed in the liquid form a preservative is added, usually alcohol, sometimes glycerin, which does not serve the purpose so well, and in the cheaper forms borax, boric acid, and salicylic acid. No matter what precautions are taken, they gradually, but surely, lose their diastasic activity. Nearly two-thirds of our food consists of starches, and we probably overlook the greater source of digestive troubles in our efforts to assure the disintegration of the fats and proteids. If, then, there is frequent need of an extra supply of diastase, it naturally follows that the best malt-extract is the one containing the most available diastase. To meet this indication it would be well to have a diastase pure and simple, one which can be dispensed in pills, tablets, or powders; which occupies a small space; which will retain its activity in any climate; which is concentrated enough that in moderate dose it will materially aid in the digestion of the bread, cakes, and pastry, which are usually presented in such a gummy, glutinous, or compacted mass, or so permeated by grease that the action of the diastasic fluid is greatly retarded. That this is possible has been shown by the preparation of diastase, in an experimental way, of which one part will dissolve fifty thousand parts of starch.

Bovet $\frac{1153}{\text{May 11,'95}}$; $\frac{2}{\text{Aug.10}}$ refers to the apparent connection between richness in albumin, or the nitrogenous elements of plants, and organic phosphorus, these two seeming to run parallel. In the leguminosæ they are found in greatest proportion. One consequence of the association of phosphates with albumin (vegetable) and the "diffusibility" of phosphoric acid is that food of this character (leguminous) is very readily dissolved and digested in the alimentary canal, even in the absence of the usual ferments. The presence of a relatively large amount of potash-salts in this food is also noted. In the laboratory of Hayem a dog was fed

for thirteen days on an exclusive diet of "legumin,"—a soup free from salt. The result was first a marked decrease in its weight, amounting to one-tenth. An analysis of the gastric juice at the beginning and end of the experiments showed a marked increase in two most important values,—namely, hydrochloric acid and chlorine. This may be interpreted as increased digestive power. A similar experiment on a patient, aged 42 years, suffering from chronic gastritis, slight dilatation, and loss of motor power of the stomach, weakness, and emaciation, showed results altogether comparable to the above. At the beginning the gastric juice, although highly acid, was free from hydrochloric acid. At the end of two months the total acidity was not increased, while hydrochloric acid was present in almost normal amount. Digestion (previously slow and painful) no longer inconvenienced the patient. Neurasthenia was lessened, and she slept eight hours daily without awakening, —something she had not done for a long time previously. In this case a certain addition of leguminous aliment was made to the otherwise unaltered ordinary diet. The author therefore considers leguminous food suitable and valuable as aliment in similar cases, and also in diabetes and obesity.

Somatose is an alimentary substance containing, besides water and salts, 78 per cent. of albumose and only 2.4 per cent. of peptone. It is a yellow powder, without smell or flavor, and soluble in water. On account of its richness in albumin it contains more than four times as much albumin as an equal quantity of meat. According to Goldmann, $\frac{34}{\text{Nos.16,17,'95}}$ hypodermatic injections of 10 cubic centimetres (2½ fluidrachms) of a 0.5-per-cent. solution in salt water at 75° F. (23.9° C.) may be employed, or daily doses of 15 to 20 grammes (3¼ to 5 drachms) in any vehicle, and combined with a diet not entirely deprived of albuminoids. It is of value in digestive diseases in which but little peptone is desirable.

Gerdes and Susewind $\frac{1}{\text{Jan.4,'95}}$ have found somatose of special utility in irritation of the gastro-intestinal mucous membrane. As an illustration of its value they cite a case of severe gastro-enteritis in which all other liquid foods given in larger quantities had been vomited, while the employment of a strong solution of somatose (a heaping teaspoonful to three tablespoonfuls of water) not only tided the patient over a critical period of fourteen days, but exerted a very favorable influence upon his strength. Although the somatose solution was administered, at first three times, then four or five times daily, for a period of fourteen days, the patient never manifested repugnance, and even during the stage of convalescence relished its addition to soups or other foods. As an addition to the ordinary diet of anæmic and nervous persons it

proved of great value, being well borne and perfectly assimilated for a long time. In the cases observed by the authors an increase of strength occurred within a comparatively short time, and in chlorosis a rapid disappearance of the menstrual disturbances, headache, vertigo, etc., was noted. In some instances after the use of somatose a remarkable improvement took place in the digestion, and all the patients experienced an increase of appetite which persisted after the discontinuance of its use. In the aforementioned solution somatose, in the author's opinion, seems preeminently indicated as a nutriment in cancer of the stomach and œsophagus, where only small quantities of food can be ingested, or after gastrostomy, since its ready assimilability precludes the occurrence of digestive disturbances.

Hans Taube $\frac{57}{\text{Dec.29,'95}}$; $\frac{1}{\text{Jan.25,'96}}$ gives brief histories of a case of ulcer of the stomach and one of cancer of the stomach in which he has observed great benefit from the use of somatose. The patient with ulcer was, indeed, fully restored to health, and the subject of cancer was much benefited. Taube has also used it with advantage in chlorosis, anæmia, phthisis, typhus, pericarditis, neurasthenia, the mercurial cachexia, and agalactia. Its effect was particularly striking in the case of mercurial cachexia.

P. J. Eichhoff $\frac{4}{\text{No.46,'94}}$ reports the case of a man, suffering from severe syphilitic and mercurial cachexia, who gained ten pounds in weight during the administration of somatose for a period of four weeks. It is recommended by George Taylor Stewart, of Blackwell's Island, $\frac{1}{\text{Nov.30,'95}}$ in the general alimentation of the sick.

According to Carrion and Cautru, $\frac{14}{\text{Aug.25,'95}}$ sparkling cider-champagne and Seltzer water are all endowed with the property of prolonging the digestive process, while adding greatly to its intenseness. Apple-cider, moreover, is considered as essentially diuretic. It also exercises a favorable influence on nutrition, and can, therefore, be used at meals by sufferers from dyspeptic disorders and gouty subjects, well-made cider being also an efficient corrective of the uric-acid diathesis.

F. Aury $\frac{35}{\text{Sept.29,'94}}$ also recommends the use of weak cider, which is free from pathogenic microbes, well tolerated by the stomach, and a prophylactic of the uric-acid diathesis. The author gives it in intermittent fever, in vomiting, and as a tonic in chlorosis and anæmia. Medicinal ciders may be prepared by the maceration in cider of such drugs as calumba, gentian, cinchona, and various antiscorbutics, diuretics, etc.

Enemata of uncooked whites of eggs have lately been used with decided benefit by John Ashburton Cutter, of New York. $\frac{61}{\text{July 27,'95}}$ A Davidson hard-rubber syringe containing 1 ounce is used by

him in giving the enema. Drugs can be administered with the raw albumen; sometimes a little laudanum is needed, but rarely, to quiet the bowel. His patients state that an enema relieves the faint feeling in the stomach, the relief lasting longer than when the whites are taken by the mouth.

G. E. Hale, of Eton, $^{2}_{\text{Mar.2,'95}}$ observed a scarlet rash after enemata, in a girl, 20 years old, suffering from ulcer of the stomach. The rash disappeared as quickly as it had come, though the rectal feeding was continued regularly. This tends to confirm the view of Suckling, $^{6}_{\text{v.1,p.1190,'94}}$ that the rash is due to the absorption of fæcal matter softened by the enema, as it did not recur when fluid was injected into the bowel after it was emptied of fæces.

Rectal Alimentation. — Lépine $^{3}_{\text{No.45,'95}}$ acknowledges that the question as to whether absorption takes place in the large or small intestine remains open, since the ingenious hypothesis of Grützner, that there is a retrograde transportation of fine alimentary particles without visible antiperistalsis, has not yet been established. If this should fail of proof, it is strongly probable that part of a nutritive injection could pass through the ileo-cæcal valve, thus partly explaining the fact that a patient can live and keep his weight entirely upon rectal enemata, in spite of the fact that the large intestine shows hardly appreciable digestive phenomena. Physiological observation shows that the ileo-cæcal valve is permeable, and that it is only necessary for nutritive substances to penetrate a certain distance into the ileum to meet with digestive juices which can change them and render them absorbable.

G. Singer $^{169}_{\text{Mar.,'95;}}$ $^{2}_{\text{Apr.13,'95}}$ states that egg-albumen, with or without preliminary peptonization, is absorbed and assimilated by the mucous membrane of the large intestine. A useful combination is that of Huber: 6 eggs are mixed with 6 grammes (1½ drachms) of salt and 200 cubic centimetres (6½ fluidounces) of a 0.15-per-cent. solution of HCl containing 5 grammes (1¼ drachms) of pepsin, and the mixture is kept for ten hours in the warm chamber. Of this mixture, nutrient enemata may be given twice daily. Rectal feeding is still insufficiently employed in practice, partly because it is sometimes disagreeable; partly also, perhaps, because this method of nutrition has not quite fulfilled the somewhat exaggerated expectations at first entertained of its utility. Singer thinks that after hæmorrhage from a gastric ulcer rectal feeding should be resorted to for some days. It diminishes the likelihood of a recurrence of the hæmorrhage by doing away with the irritation caused by the presence of food, and by giving the stomach physiological rest, with freedom from the peristalsis and hyperæmia accompanying digestion; it is at the same time a treat-

ment for the troublesome vomiting of gastric ulcer with or without hæmorrhage. The nutrient enema should not consist of more than a quarter of a litre (½ pint). Singer has practically kept to the mixture recommended by Boas, and uses 125 grammes (4 fluidounces) of milk, 125 grammes (4 fluidounces) of wine, the yelks of 2 eggs, mixed with a little salt and a teaspoonful of Witte's peptone; he sometimes adds a little grape-sugar. The mixture is well beaten up, and an ordinary enema-syringe furnished with a soft tube is used to inject it. The nutrient enema may be given three or four times daily at intervals of four or five hours. The rectum must be cleaned out with enemata before each nutrient enema is given, and neglect of this precaution is a common cause of symptoms of rectal irritation. Singer recommends the administration of a suppository containing $\frac{1}{100}$ grain (0.0097 gramme) of extract of opium after each nutrient enema; when there is great tendency to tenesmus, 8 to 10 drops of tincture of opium with the other ingredients of the enema. It is very seldom that the enemata are not retained, but in this case the preparation of the mixture may be at fault; there may be too much salt or an unsuitable ready-made peptone preparation may have been used. The patients with hæmorrhage from gastric ulcer were kept in bed and nourished solely by the rectum for from four to eight days. Singer says that recurrence of the hæmorrhage took place only when patients secretly took solid food before they were allowed. When there is much pain, a mixture containing subnitrate of bismuth and chloroform can be given by the mouth. Excessive feeling of hunger and thirst can be treated by a little opium (better than cocaine) and 200 cubic centimetres (6½ fluidounces) of water (for thirst); but if the thirst be excessive, owing to diarrhœa, more fluid may be given. Singer also recommends exclusive rectal feeding to be tried in some cases of dilatation of the stomach; in some of gastric neurosis, including excessive vomiting of pregnancy, and after some abdominal operations. In cases of typhoid fever he thinks that he has diminished the great loss of weight by feeding patients by the rectum in addition to the ordinary feeding by the mouth. Enemata containing alcohol and tea may be useful in collapse during acute diseases and where alcohol cannot well be administered by the mouth.

BALNEOLOGY.

Sea-Air, Sea-Bathing, and Salt-Water Bathing.

As a general rule, the atmosphere is subjected to meteorological influences diametrically opposed, according as this atmos-

phere is over the sea or over the land. The sea, being cooled or heated but slowly, keeps an equable temperature, while the land, on the contrary, passes rapidly from one extreme to another; so that the marine atmosphere, to which the sea communicates its thermic properties, enjoys an equality of temperature, while the land-climate is inconstant and variable. These facts were experimentally proven by Lalesque. 1153 Jan.12,'95

According to Kühner, 748 Mar.,'95; 15 July sea-climate presents in its action and nature various curative factors according to the mode in which it is employed,—sea-air, sea-baths, and extended sea-voyage, or in the recently developed high-sea sanatoria in the form of steamships. Sea-air is characterized by its absolute purity, richness in oxygen, lessened amount of carbonic acid and other deleterious compounds, increased ozone-formation; the presence of chlorine, bromine, and iodine; an equable temperature, density, moistness, and free movement. All these different properties of the air produce the following effects, according to the peculiarities of the individual: 1. Radiation of the bodily temperature, a more speedy cooling of the surface. Sea-climate favors the stimulation of the skin and mucous membranes by means of sea-air, especially if this be aided by sea-baths, and is an excellent means of hardening those who suffer from affections due to cold, catarrh, and rheumatic trouble. 2. Reduction in the frequency of the respiration. 3. Moderate increase in the pulse-rate. 4. A similar increase in the body-heat. 5. Increase of the urea and sulphates; decrease of phosphoric and uric acids. 6. A greater appetite for sleep. All these actions are subject to great variations according to the individual. The principal condition for the tolerance of sea-climate is that the patient should possess a certain power of resistance. Those who are very ill often experience aggravation and may lose strength; a certain resisting power and good digestion are, therefore, necessary for a sea-climate. In nervous affections, hysteria, and functional neuroses, all factors have to be carefully considered before deciding upon a sea-climate. In a similar way the action upon the respiratory organs is a variable one and can be regarded as favorable only in general. It depends much upon the stage and extent of the disease. Slight chronic catarrh of the bronchi and larynx, as well as affections of the pulmonary tissue, catarrhal inflammation, infiltration, emphysema, and phthisis, in early stage; affections of the naso-pharynx, middle ear, and Eustachian tube,—all receive improvement or even cure. Nervous bronchial nasal asthma obtains great benefit, as also children with whooping-cough. Benefit may be got in all stages of phthisis, provided they are not too advanced. Disturbances of nutrition may benefit

greatly, anæmic and chlorotic states being markedly influenced. With regard to the points of difference between sea- and mountain-air Kühner states that both show great similarity as well as contrast in their action. In general, sea-air is moist, heavy, and equable, while mountain-air is dry, light, and subject to sudden variation. Both are distinguished by purity and richness in ozone and are tonic and suitable for convalescents. Children do well on the sea-coast. Dyspeptics and those suffering from liver disturbances fare badly on the coast and do better in mountain resorts. Skin diseases, especially eczema, often get worse by the sea, while spasmodic conditions and nervous affections do well. Mountain-climate is contra-indicated in rheumatism, heart or kidney disease, as also bronchitis and emphysema, which do well in well-sheltered sea-resorts. Obstinate insomnia and hysteria are unsuitable for both sea- and mountain- air and receive more good from a moderately bracing Continental health resort.

Alluding to the Atlantic Coast and the Riviera, Lalesque, of Paris, $^{1153}_{\text{Jan.12,'95}}$ assigns to marine climate the following characteristics: 1. A medium annual temperature higher than that of countries situated in the same latitude. 2. Less sudden changes. 3. Predominance of westerly winds. 4. Predominance of autumn rains. 5. An increased average humidity. The Atlantic shores have a sea-climate, while the shores of the Mediterranean possess a Continental climate influenced by the variations of the temperature on land. The physiological and therapeutic effects of the two are thus quite different.

Lindemann $^{116}_{\text{Nov.,'94}}$; $^{2}_{\text{Dec.22}}$ gives various observations made both during a long stay at Heligoland and in the course of an ocean-voyage. The most marked effect as observed in individuals accustomed to town- or country- air is produced on the circulation, which, tested by the sphygmograph, showed a slower pulse, as also higher and steeper curves. This, as well as the deeper and longer inspirations, the author ascribes to the stimulating properties possessed by sea-air, on account of its mechanical admixture with salt and the greater force of the wind; the skin temperature is also more permanently reduced by sea- than land- air. As regards sea-sickness, its effects are also to retard the pulse, but at the same time very much to lower its force.

In a discussion on the sea-side for tuberculous patients, before the Second Congress of Thalassotherapy, G. Houzel, of Boulogne-sur-Mer, $^{31}_{\text{Aug.31,'95}}$ stated that, in deciding as to the advisability of sending patients suffering from pulmonary disease to the sea-side, it must be decided whether the cases are suited to the stimulating atmosphere. If the disease is slow in progress and the individual

lymphatic, or, so to speak, scrofulous, the marine climate will, without doubt, prove beneficial. If, however, there be fever, hæmoptysis, or cavities of any size, or if the individual be nervous or arthritic, the air of the sea will produce a fatal excitation, and should be avoided. Sudden changes of temperature and violent winds should be avoided, and a sunny resort, protected by hills from cold winds, especially of the north and east, selected. The breeze from the sea is mild and beneficial, that from the land is to be feared, and for that reason many sea-side resorts are unfitted for phthisical patients in the winter.

J. Casse, of Middlekerke, did not regard hæmoptysis as a formal contra-indication. He had seen two patients who had had severe hæmorrhage much benefited by a sojourn at the sea-side, and he knew of no case in which an initial hæmorrhage had occurred there. He believed that phthisical patients would find themselves under better conditions for recovery owing to the purity of the air and the climate advantages enabling them better to resist the progress of the disease.

Houzel, of Boulogne, $\frac{118}{\text{Oct.,'95}}$ states that children should become acclimated before being allowed to run at liberty on the sea-shore. They should be taken there only a few hours the first days, and the baths should not be given until the sixth or eighth day, and then during the warmest hours.

Hot Sea-Baths.—Gérard $\frac{31}{\text{Sept.4,'95}}$ called the attention of the Second Congress for Thalassotherapy, held at Ostend in August, 1895, to the value of hot sea-baths (38° to 40° C.—100° to 104° F.—from 30 to 45 minutes) in glandular swellings, congestion of the genito-urinary apparatus, gout, and rheumatism. He prefers the Scotch douche. Félix, of Brussels, $\frac{31}{\text{Aug.31,'95}}$ also advocates such baths, finding them efficacious in obesity and diathetic cardiac affections.

Salt-Baths.—The treatment of anæmia by means of baths containing 7 to 13 per cent. of salt and their influence upon nutrition are discussed by Keller, of Rheinfelden, $\frac{996}{\text{Jan.25,'95}}$ whose results agree with previous physiological researches of Albert Robin, and may be formulated as follows: 1. Salt-baths are eliminators of uric acid, the greatest elimination being obtained with baths containing 12 per cent. of salt. 2. They increase the oxidation of nitrogenous matter in the organism. 3. They diminish the amount of nitrogenous extractives but little soluble and eliminated with difficulty. 4. They restrict nitrogenous disassimilation 5. They diminish the disassimilation of organic matters *en masse* until menstruation. 6. The exchange of inorganic matters remains diminished. 7. The exchange of total phosphoric acid is increased, especially of alkaline phosphoric acid. 8. There is a diminution

of nervous and osseous metabolism. 9. The increase of sulphuric acid indicates an hyperactivity of the biliary function. 10. During menstruation the co-efficient of oxidation (Albert Robin) attains its maximum (96.6 per cent.) and its average (92.6 per cent.). 11. Menstruation indicates, by the high ratio of nitrogenous oxidation, the exact moment for the interruption of the cure. 12. Salt-baths are suitable, therefore, for cases of chlorosis in which the co-efficient of oxidation is diminished,—that is, through insufficient nutrition.

Basing his conclusions on results obtained by Makaveef and on experiments of his own, Mironoff, of the thermal station at Slavianski, Russia, [621 No.35,'95] states that hot salt-baths calm the pains of dysmenorrhœa and, far from increasing the loss of blood, notably diminish it. The pain accompanying various diseases of the pelvic organs in women is relieved by hot baths, whether salt or not. Patients unable to support a general bath were given sitz-baths by the author, the effect upon the menstrual flow being the same.

Vieller [133 Mar.15,'95] has had favorable results from the use of baths containing from 6 to 31 per cent. of salt. He believes that individual indications are necessary for the spring containing a small quantity of salt and those containing a great deal.

Sand-Baths.—Grawitz, of Berlin, [69 No.21,'95; 1170 July] has obtained very satisfactory results in the treatment of twenty rheumatic patients from the use of hot sand-baths. Chronic rheumatism, more particularly chronic arthritis deformans, appears to be especially susceptible of improvement by this method of treatment. Not only general baths, but also local baths of the feet, hands, limbs, etc., are beneficial in chronic rheumatism. The first effect of these baths is to relieve the pain; then the swelling and articular extravasation diminish. They also exert a decided influence on œdemata of cardiac or renal origin. These baths are not attended with any ill effects, and do not expose the patient to collapse, as do warm water-baths. To be pleasant, the sand should have a temperature of 50° C. (122° F.), which is a higher temperature than can very well be borne in warm water. The bath should last from thirty minutes to one hour. The body-temperature rises at first, but, as a rule, not over 1° C. (1.8° F.). Abundant diaphoresis rapidly supervenes, the weight of the excreted perspiration sometimes reaching 1 or 1½ kilogrammes.

Cold, Hot, and Mineral Baths.

[The bulk of the literature on balneology and hydrotherapy has been subdivided among the sections treating of diseases in which these methods are utilized.]

Ausset [188 Nov.17,'94] has studied the action of cold baths on healthy men and animals, and afterward on patients with typhoid fever, pneumonia, variola, and severe icterus, and asserts that this action is exactly the inverse of that of pyrexia on the various organic functions. Fever causes hyperthermia, increased excito-motor power of the central nervous system, acceleration and weakening of the heart's contractions, slowing of the urinary secretion, only incompletely oxidized products being eliminated. The cold bath, on the contrary, lowers the temperature, quiets the nerves and strengthens and slows the heart-beats, while it increases the secretion of urine, in which the products of incomplete combustion diminish, while the amount of urea increases, indicating a return of normal nutrition.

Buxbaum [1001 No.9,'95] believes that even in the presence of intestinal ulcerations it is possible, by means of hydrotherapeutic measures, to modify the diarrhœa which is so often a symptom of pathological conditions of the intestinal tract. To increase peristalsis when it is necessary to cause evacuation of irritating substances, recourse should be had to enemata, combined with sitz-baths, 12° to 22° C. (54° to 72° F.) of one to five minutes' duration. This will cause an abundant and fetid evacuation and colic will rapidly disappear. If it is necessary to diminish peristalsis, hot sitz-baths must be given of from one-half to one hour in duration, followed by wet compresses of a temperature of 25° to 30° C. (77° to 86° F.). The abdomen may also be covered with dry flannel, a compress dipped in hot water placed over this, and the whole covered with dry flannel.

When it is desired to diminish intestinal hyperæmia with consecutive catarrh, congestion of the abdominal walls may be brought about by energetic rubbing with a cloth dipped in cold water and wrung out, or by a sitz-bath, very cold and lasting from ten minutes to half an hour, and followed by energetic friction. The patient should also wear a flannel belt. Chronic diarrhœa is very favorably influenced by this treatment, as is also tuberculous ulceration of the intestine.

Buxbaum [69 Dec.27,'94; 2 Jan.26,'95] thinks that the hydrotherapeutic treatment of neuralgia has hardly received in practice the attention which it deserves. In neuralgia of rheumatic origin it acts by inducing increased blood-supply to the affected parts, and in the neuralgias following upon the infective diseases or due to intoxication by mercury or lead it promotes the elimination of the poison. In eighty-three typical cases of neuralgia this treatment was unsuccessful only in 5 per cent., whereas 60 per cent. were cured and the remainder considerably relieved. The alternate

application of heat and cold is most to be recommended. The patient is exposed to high temperatures, and afterward cold applications are made. The alternating Scotch douche is particularly of service. Recent neuralgias may often be cut short in this way. Patients with sciatica treated without effect by various therapeutic measures, even including nerve-stretching, have been cured in a short time by this method. If the neuralgia persist, it is nearly always due to some irremediable cause, with the exception of some few cases open to operation. If a remission occur after the treatment is begun, it shows the neuralgia is curable, and is, therefore, of prognostic value. In trigeminal neuralgia hydrotherapeutic measures applied to the whole body are the most suitable. Of course, other indications should be attended to,—such as anæmia, malaria, etc.

Warm and Hot Baths.—Sir Benj. Ward Richardson [38] 3d Q., '94, '05 has often made use of the warm bath in diagnosing the condition of the abdominal organs. In order to carry out the plan, the water in the bath is brought up to the natural temperature of the body, and the patient is allowed to recline in the water with all parts immersed, except the face and head, for a quarter of an hour before the examination commences. By that time the skin has become flaccid and the parts beneath, especially in the abdomen, are more readily felt through the abdominal walls. The author used the bath with excellent effect in the case of a hospital patient who was deeply jaundiced, the complete relaxation of the abdomen being an immense advantage. He could, without difficulty, feel and define all abdominal organs through the abdominal walls,—the uterus, the kidney on each side, the pancreas throughout its length, and the line of the colon. The pulsating aorta and the outline of the liver were revealed almost as well as if they could be seen. Both lobes of the liver were felt to be enlarged, firm, smooth; no cystic growth or tumor could be detected at any point, and no obvious enlargement or distension of the gall-bladder could be found beyond the line of the margin of the liver. The pancreas was felt to be rather enlarged and firm. The liver was condensed in structure and enlarged in growth, and there was disease of the pancreas. The patient gradually sank and the post-mortem confirmed the diagnosis.

It may be urged that the examination of the body in the bath is applicable only for emaciated subjects, and in them it is, no doubt, specially applicable. But it is surprisingly useful in obese subjects also; the relaxation in their case is beyond what would be expected, and the organs in the abdominal region are much more clearly defined than under the common conditions. It admits of

inquiry whether the specific gravity of organs cannot be made out by this water-test. It would be easy in this manner to detect whether a large tumor in the body or the limbs was solid or fluid, and, to a considerable degree, to determine its nature.

Eccles [59 June 29,'95] states that the use of the warm bath for the purpose of producing sleep is very efficient if properly carried out. The bath should be administered in a room whose temperature is 65° to 70° F. (18.4° to 21.1° C.). The patient is made to stand with his head over the edge of the tub, and his head and face are then rapidly douched with water at 100° F. (37.8° C.). The cooling of the body by the air and the hot sponging of the head send the blood to the head, dilating the vessels of the entire brain. The entire body is then immersed, except, of course, the head, in a bath at 98° F. (36.7° C.), which is rapidly raised to a temperature of 105° to 110° F. (40.6° to 43.3° C.). In a few minutes the patient is taken from the bath, wrapped in warm blankets, and, without exertion on his part, taken to his room. The blankets absorb the moisture; in his room his night-clothes are put on, a warm bottle placed at his feet, and possibly some warm liquid food administered. The sedative and refreshing result is often most marked.

Leredde, of Paris, [14 Oct.24,'95] has found that prolonged hot baths of the extremities are productive of sleep and also act favorably on congestive phenomena, especially cerebral or cardiac. The inconvenience of such baths, however, is that they cause a tendency to lipothymia. They should therefore be avoided in patients with heart disease who are subject to syncope.

J. Nicolas [108 July,'94] stated that the warm douche alone produces greater pulmonary expansion than massage does alone, but Douglas Graham [99 Dec.6,'94] shows that the combination of the two methods is still more effectual. The experiments were carried out on a large number of patients suffering from chronic bronchitis, asthma, and emphysema at the thermal station of Mont-Dore, and, while the basis of the treatment consisted in inhalation of vapors and imbibition of waters, the warm douches were valuable preliminary adjuncts. It was found, both by auscultation and by the spirometer, that the expansion of the chest was increased after the warm douches, and an average result of a number of cases showed an increase of from 200 to 300 cubic centimetres (12 to 18 cubic inches). Graham thinks the expansion may be due to three causes: 1. Reflex action, which the douche, by its warmth and strength of projection, determines upon the respiratory-nerve centres, thus causing decrease of dyspnœa. 2. Absorption by the lungs of the vapor and of the carbonic-acid gas, which are set free

from the mineral water when the column of liquid is broken against the chest. The vapor and carbonic acid calm the bronchial spasm and so facilitate entrance of air into the chest. 3. The massage which the douche exerts on the muscles of the thorax, exciting their contractility, and to this cause the increase of expansion is ascribed. In order to produce its best effect the following conditions of temperature, pressure, and duration are recommended: The temperature ought to be about 38° C. (100.4° F.); the water should be projected in an horizontal jet or vertical column, but not in the form of a spray, which lacks force. The pressure should be of 5 to 7 metres and the duration from seven to ten minutes. The increase of respiration usually lasts nearly an hour, and, without claiming any actual cure, cases of emphysema are said to be very greatly benefited by the addition of the douches to the other mode of treatment.

G. Manley Ransom, of New York, $^{59}_{\text{Mar.23,'95}}$ in reporting a series of cases of neurasthenia treated by thermotherapy, states that his experience in several hundred cases of neurasthenia with baths convinces him that these patients will not stand shocking. This is contrary to most text-books on hydrotherapy, and for this reason he considers it of the greatest importance to call the attention of the medical profession to it, and more particularly as the cold bath is so commonly prescribed in neurasthenia. The patients seem to react well, but this effect is transitory and nearly always at the cost of too great nerve expenditure. Nutrition does not always make up the loss, and in the end this treatment is a strain on the nervous system. It is good to exalt the nervous system moderately, whereby we may produce the normal degree of functional hyperæmia, which is absent in this disorder; but, when an asthenic patient says he feels "fine" after a cold bath, he has probably been too highly stimulated and at a later hour will feel depressed in consequence, although he will not usually attribute this result to a bath which has given him such relief. His physician will too commonly fall into the error of recommending still colder baths, or will direct him to take, in addition, some unusual exercise which can but further exhaust his strength. These patients should have baths carefully regulated to suit their constantly varying sensibility. If a cold bath is agreeable to a delicate patient he is an exception to the rule; but no matter how accustomed to cold baths he may have been in better health, as a neurasthenic he is peculiarly weak—important nerve-cells are not well nourished and their nutrition cannot be established by violent shocks.

Encouraged by the results obtained by Aufrecht from the use of hot baths in cerebro-spinal meningitis, Vorochilsky $^{571}_{\text{No.4,'95}}$ decided

to try them in two cases. The first was that of a man, 25 years of age, of tuberculous aspect, who suffered from severe cerebro-spinal meningitis. There was intense cephalalgia, vomiting, stiffness of the nape of the neck, general hyperæsthesia; pulse, 60; temperature, 37.8° C. (100° F.). All these symptoms became aggravated after his entrance to the hospital, the pulse becoming slow and irregular and the weakness greater. A hot bath was then given and was followed by a slight amelioration of the general condition, the improvement becoming more marked after each successive bath, until, by the time the eighth had been given, recovery was about complete. In the second case the condition of the patient was even more serious, owing to cardiac asthenia, and the result was equally satisfactory. All other remedies had been tried for several days, but had failed. The baths were given daily at a temperature of 40° C. (104° F.) and ten minutes in length.

Mineral Baths.—The electrical properties of mineral baths have recently received considerable attention. De Pietra Santa, of Paris, in an able review, refers to the investigations of Zinno, of Naples. [153 Jan.,'95] After a long study Zinno affirms that mineral waters, whether natural or artificial, contain, beyond their constituent principles, a something to which is due their therapeutic activity. The electrical state is demonstrable by the galvanometer, which in certain waters of the Italian peninsula reaches 93 degrees. The intensity diminishes more or less rapidly according to the nature of the water, and in every case, after being allowed to stand for several days, none of them caused the needle to oscillate. Zinno therefore concludes that the electro-dynamic condition of the waters are responsible to a great extent for the therapeutic action, and he advises balneologists to ascertain the degree of this action by means of Nobili's galvanometer. To do this the electrode in the bath is put in communication with the electrode in the mouth of the patient. When the latter is immersed in the bath, a dynamic current is established from the water through the human body, the water being electro-negative in relation to the person.

Elevy, of Biarritz, [720 Sept.,'95] finds it exceedingly easy to discover the presence of electric currents in mineral waters, though they are so feeble that from his own personal experiments they do not explain the favorable action of the baths, since they are not strong enough to overcome the resistance of the human body, and can only act upon the skin.

In a paper read before the Balneological Congress, Groedel showed [4 Mar.18,'95; 15 May,'95] that the initial increase of blood-pressure from cold baths is soon followed by a compensating alteration of the

tension of the internal blood-vessels. By special precautions, this rise in the blood-pressure, especially the uncompensated and sudden increase, may be minimized; but the cause of those primary rises in blood-pressure, the contraction of the large vessels, disappears readily if the baths contain a larger quantity of salts, and especially of carbonic acid. In consequence of this in these baths the risk of apoplexy in arterio-sclerosis does not amount to much, and experience confirms this view. The carbonated thermal brine-baths may be of service in arterio-sclerosis in several ways: 1. They may relieve many states which frequently occur along with arterio-sclerosis, as chronic rheumatism, gout, neurasthenia, etc. So far as these constitutional states afford favorable conditions for the development of arterio-sclerosis one may, by a course of bath treatment directed toward them, induce considerable benefit to the arterio-sclerosis itself. 2. We may favorably influence the disturbances in single organs and circumscribed areas significant of the origin of arterio-sclerosis, promote the elimination of abnormal blood-constituents which injure the endothelium of the vessels and functional activity of the tunica media, and we may, perhaps, act with advantage upon the innervation of the arterial vessels and the nutrition of the contractile elements in the vessel-walls. 3. Of special value is the bath treatment in the consecutive disturbances of the circulation by developing compensation. The author gave a number of contra-indications, and emphasized the importance, at the same time, of seeing to the removal of injurious conditions as far as they are occasioned by improper habits of life.

M. and R. Durand-Fardel $\frac{1153}{\text{June 22,'95}}$ point out that the baths of Carlsbad and Vichy present distinctly different properties, and that, though there may be cases in which their value is equal, the physician makes a serious mistake in prescribing them indifferently, as is generally the case. Vichy is essentially mineralized by about 5 grammes (1¼ drachms) of sodium bicarbonate, the sodium sulphate (0.27 gramme—4¼ grains) and sodium chloride (0.57 gramme—9 grains) being lost in the quantity of other secondary constituents. Carlsbad has 2.50 grammes (39 grains) of alkaline sulphates, 1.30 grammes (20 grains) of sodium carbonate, and 1 gramme (15½ grains) of sodium chloride.

Though the cures appear somewhat identical as regards the general therapeutic effect, they are in reality entirely different as regards their effect on the organism. Carlsbad is especially suited to torpid and Vichy to excitable organisms. As regards the disease, Carlsbad is best for malarial hepatic engorgement of long-standing and abdominal plethora, while biliary lithiasis

with severe symptoms and hepatic colic are most benefited at Vichy.

The geographical distribution of the mineral springs of the United States has been studied by A. C. Peale, of Washington, [451 Nov.,'95] who asserts that within our own borders we have springs that duplicate those of Europe, or, indeed, of any other part of the world. They are located at all elevations, from that of the Atlantic or Pacific coast to the high mountain-areas of Colorado, and under all climatic conditions, from the equable climate of Southern California to the glacier-bound regions of Alaska, and from the sunny skies of Florida to the bracing air of New England.

CLIMATOLOGY.

American Resorts.

Colorado.—Solly, of Denver, Col., [1174 Dec.15,'94] finds from his experience that, as to the individual, the anæmic and phlegmatic are best influenced in Colorado as regards the disease; in chronic, as regards the stage of disease. A larger margin of sound tissue in the peccant organ is demanded than in changing to a less extreme climate, and a certain evidence of vital resiliency is imperative.

With respect to pulmonary disease, it should be especially remembered that in sending patients to Colorado they will need prudence and instruction to benefit by its climate; that the whole principle of the influence of altitude upon chronic disease is the exciting of a healthy life in the place of the unhealthy; that in prescribing an altitude to insure success the method of administration demands most careful consideration. Taking the medical profession as a whole, it is unquestionable that a large majority of those who have made a study of the subject believe that, where a change is made, a change to an elevated country is the most likely to benefit a consumptive.

Munn, of Denver, [1174 Dec.15,'94] presents the following points in regard to the climate of Colorado and the cases of phthisis which should be sent there: 1. The cases unfavorably affected by high altitudes are only those in which the extent of lung involvement is so great that the available respiratory area cannot secure a sufficient supply of oxygen from rare atmosphere. 2. Fibroid phthisis and bronchial irritation do not contra-indicate residence in the Rocky Mountain region. Embarrassed heart-action, when dependent on conditions specified in No. 1, is a contra-indication. 3. In the author's experience, high altitude does not cause nervous disturbance or physical depression in such a manner as to favor the

development of more active pulmonary trouble. Headaches and neuralgias due to congestive troubles are occasionally increased in severity, but the beneficial influence of the climate upon the individual's general health will, in 99 per cent. of cases, vastly overbalance this. 4. The tendency to fever is not increased by mountain climate.

Waxham [1174 Dec.15,'94] believes that, while the climate and altitude of Colorado are not suitable for all cases of consumption, a great many recover there who would otherwise have filled untimely graves. The cases that are especially unfavorably affected by its climate are those in the later stages. The dyspnœa is increased, the ability to take exercise diminished, and the heart's action increased. This, added to the disappointment and the absence from friends and home-comforts, renders life miserable and the unfavorable result certain and speedy. Colorado climate is worse than useless where a large area of lung-tissue is involved in the tubercular process, where there are profuse night-sweats, rapid heart-action, elevated temperature, with emaciation and prostration. Patients so affected are much better at home, but, if sent away, should be sent to a mild climate and a low altitude. He believes that fibroid cases with bronchitis and embarrassed heart-action are unfavorable, but, with proper care in regard to exercise and with the aid of heart-tonics, they will undoubtedly do quite as well there as anywhere, except in the later stages. As a rule, it requires from one to two years of residence in Colorado for active cases to pass into the stage of "arrest." Cases complicated with diseases of the heart need not be debarred from going to Colorado, provided care is observed in regard to exercise, if heart-tonics are taken until the patient has become acclimated, and especially if the lower altitudes of Colorado are selected.

California.—W. A. Berry, [59 July 13,'95] in a report on the relative value of the different stations, states that, all things considered, Southern California seems to present more of the essentials of health and comfort for a larger proportion of invalids than any other section he has visited. One finds that, as a class, those who have gone about the most are the best satisfied there. It should always be remembered that it is a land of many and varied climates, of wide range of heat and cold, dryness and moisture, of mountain height, sea-level, and below the sea. A few miles from its principal town one is at the sea; an equal distance in another direction, six thousand feet above it. Journeying three or four hours from the ocean through ever-increasing dryness brings one to the great dryness of the desert, at, above, or below the sea-level.

W. H. Dukeman, of Los Angeles, [1 Oct.6,'94] regards the promiscuous

manner in which physicians of the East send patients to Los Angeles as regrettable, the city proper not being a sanitarium in any sense of the word, particularly on account of the manner in which lodging-houses and private hotels are conducted,—rooms being occupied week after week by patients and then given to another patient or a healthy person without their being renovated or thoroughly cleansed. (The same might be said of all the other resorts, taking them as a whole; but there are, undoubtedly, exceptions.)

Wm. M. Tisdale, of Redlands, Cal., $^{99}_{\text{Feb.21,'95}}$ speaks in the same way, and argues that there are always cottages to be rented in any Southern California town, if the invalid does not care to follow that best plan of all and construct a tent-cottage. Housekeeping is cheaper than hotel-living and infinitely better. The patient may be more quiet, and he may have such articles of food prepared as he desires,—a very decided advantage over hotel-life. Southern California is full of warm-hearted, sympathetic people, and the patient, far from being isolated, will find friends, and many to approve.

Florida.—An editorial writer $^{121}_{\text{Dec.,'95}}$ calls attention to an ideal resort on the western coast of Florida,—viz., Tarpon Springs. Although situated so near to the gulf, the humidity at this place is low. The variation of temperature is wonderfully small and scarcely exceeds 10 degrees, 65° to 75° F. (18.3° to 23.8° C.) being average winter weather. Fire is rarely needed except for cooking purposes. This resort is of great benefit to those who suffer from disease of the respiratory apparatus. Asthmatic patients derive much relief, and the same is true of those who are the victims of chronic bronchitis, bronchial dilatation, and emphysema of the lungs. For pulmonary tuberculosis the climate is exceptionally favorable. Patients who are sent to Tarpon Springs at an early stage of the disease; who live much out-of-doors, in the forest and on the water; who breathe a pure, ozonized, and aseptic air, gain in appetite, nutrition, and respiratory capacity. The disease is arrested and practically cured in an unusual proportion of such cases.

Texas.—T. W. Conerly, of San Angelo, Texas, $^{143}_{\text{Oct.,'94}}$ regards the Concho country, lying between the Colorado River and the Rio Grande, at an elevation of 1500 to 3500 feet, between Runnels and Concho Counties and the Devil's River, as the most desirable part of Texas as a health resort for tuberculous individuals. The picturesque Concho Valley is here situated, with its river of the same name, whose clear, crystal waters go charging over rapids and rushing to the sea. The average elevation of this scope of

country is 2000 to 2500 feet and includes several pleasant towns. Ballinger is situated on the Colorado River, and also on the Gulf, Colorado, and Santa Fé Railroad; San Angelo is at the terminus of the same railroad, on the banks of the beautiful Concho River; Sherwood, Sonora, Ozona, and a number of smaller towns are all reached by daily stage from San Angelo. The country is sparsely settled, many large ranches occupying a greater part of it. But little farming is attempted, except along the water-courses, where irrigated. The atmosphere is extremely dry. Dew seldom falls at any season of the year. Many of the people sleep out of doors in summer, with perfect immunity. The Concho Valley is near enough to the Gulf to get the benefit of the atmospheric movement coming from that source, but so far away that its moisture is eliminated and the sweeping gale moderated.

New Mexico.—S. E. Swope, of Marion, Ky., $\frac{224}{\text{Oct. 20, '94}}$ after careful research and some personal experience, has come to the conclusion that Southern New Mexico more nearly fills the requirements for the advantageous treatment of pulmonary diseases than any other region. Southeast of Silver City there is a high plateau, through which runs the little mountain stream, the Mimbres River, until it loses itself in the dry, sandy plains. This plateau, from 4500 to 5000 feet in altitude, about fifty miles long and forty wide, is sheltered on every side by high mountain ranges and peaks. Some idea of the dryness of the atmosphere may be gathered from the fact that ten inches is considered a heavy annual rainfall, and no one in the region expects rain from October until the following July. Vegetation in this region does not decay, but simply dries up. The maximum temperature is 90° F. (32.2° C.), but the ever-present breeze from the mountains so tempers the heat that it is not oppressive. The minimum temperature for the last ten years has been 28° F. (—2.2° C.). The hottest days are sure to be followed by cool nights, enabling one to secure rest, though the heat of the day may have been oppressive. An invalid may be out of doors three hundred and thirty days in the year, while the mountain scenery and many geological developments afford very pleasant diversion.

Foreign Resorts.

Egypt.—The influence of the climate of Egypt upon disease is discussed by Leigh Canney, of Luxor, $\frac{6}{\text{Oct. 27, '94}}$ who is of the opinion that cases of phthisis, unless the symptoms are very acute, with a tendency to diarrhœa, repeated pleurisy, involved larynx, or active disease of both lungs, do well in the climate of upper Egypt, the desert being one of the best attainable for these cases. Some cases

of asthma do better than others, but the majority are free from attacks or nearly so. The benefit in cases of chronic bronchitis and catarrh is sufficiently well known. The climate has a specially happy effect on cases of mental strain from worry or overwork, and the writer combats the opinion that a patient with a tendency to apoplexy cannot go to Egypt. The advantages in cases of insomnia are to be noted, but if this be dependent on heart disease it will be only partially benefited, or perhaps not at all if the patient, ignorant of the heart trouble, spends his days in overfatigue. As to Bright's disease, albuminuria, rheumatoid arthritis, gout, and acute rheumatism (between the attacks), the results are so well known, being practically unique in these cases, provided the patient live in the driest districts, that it is not considered necessary by the author to dwell upon them. Some physicians regard chronic dyspepsia as a suitable affection for this climate.

Gastric disorders are rarely met with up the Nile; it must not be forgotten, however, that Egyptian cooking and some of the main articles of diet are not of the quality to be had at home, especially as regards meat. Cases of hysteria, alcoholism, and hypochondriasis, especially if placed under direct medical supervision, would be benefited. With heart disease perhaps enough evidence to generalize is wanting, but probably aortic regurgitation is the least benefited. Functional disease of the heart is greatly improved, and those cases in which early hypertrophy and dilatation of the right side of the heart are present or to be expected would derive greater benefit than would sufferers from the same trouble on the left side. Those who have been the subjects of malaria would derive benefit from the climate and should spend their time in desert resorts. Laryngitis and clergyman's sore throat must be sent to the spot the least dusty and freest from organisms and at the same time the most equable. Children with strumous tendency do very well, and cases of premature senility derive great benefit. The cases of cystitis with commencing kidney disease must have continued medical supervision and must not be allowed to live simply as tourists, regardless of the task to be accomplished. Advanced emphysema, with bronchitis and weak, dilated heart, is in danger in any climate. If the hotels were specially constructed and ventilated to preserve uniform conditions, these patients might avoid the changes of temperature and relative moisture which even in Egypt occasionally induce in sensitive subjects a fresh attack. We must not forget the desirability of excluding those subject to chronic diarrhœa from any cause, or the remains of dysentery, although Sandwith[2021 '91] finds that dysentery that has been cured and sprue (hill diarrhœa) derive

benefit, and he would regard Egypt as a convenient resting-place on the homeward journey from the East, in the winter months, for these cases.

E. Symes Thompson, of London, $^{6}_{\text{Oct.26,'95}}$ states that invalids should be warned of the danger of chill at sundown on the Nile. The dangers of life in a *dahabiyeh* must be borne in mind, and it is often safer to travel by steamer. The warm, dry air is of use in bronchial affections with emphysema, in case of quiescent phthisis in all stages, especially when of pneumonic, broncho-pneumonic, or pleuritic origin, and particularly when the disease follows influenza, measles, or enteric fever, and naso-pharyngeal catarrh. Hypochondria, hysteria, and neurasthenia were also benefited, and chronic cardiac and renal diseases do well in the climate; whereas, further, the electrical condition of the desert-air sometimes interfered with the sleep of healthy persons, it acted otherwise on sufferers from hysteria.

According to H. J. Haidwicke, of Sheffield, $^{16}_{\text{June,'95}}$ the people who ought, on no account, to winter in Egypt are those suffering from advanced phthisis, recurrent hæmorrhage, and weak eyes, and those who are subject to febrile affections and acute congestions; while sufferers from incipient phthisis, neuralgia, rheumatism, chronic renal disease, and nerve-exhaustion derive distinct benefit from the climate.

France.—Lalesque, of Arcachon, $^{188}_{\text{No.19,'95}}$ has made a study of 200 cases of tuberculosis treated by him at Arcachon with the following results: Prophylactic action, 50 cases, all recovered. Curative action, 170 cases, 73 in the first stage; of these, 22 recovered, 39 improved, 12 were aggravated or died; of 37 in the second stage, 1 recovered, 24 improved, 12 grew worse or died; of 60 cases in the third stage, 4 recovered, 21 improved, and 35 grew worse or died. In his opinion the sea-side is as good as the mountains for these cases, both being efficacious through a common element,—pure air.

Ceylon.—It is only within the last three or four years that the island of Ceylon as a winter resort has begun to attract the attention of the general public and also the medical profession. According to P. M. Short, of Talawakele, $^{213}_{\text{Dec.,'95}}$ unlike the Continental resorts, there is no severe weather experienced in the shape of frost and snow within the verdant shores of Ceylon. The variety of climates is what make it so popular as a health resort. For all forms of disease requiring a change of climate Ceylon affords a wider field than any other country. For the consumptive the dry, bracing air of the Uva country, and also of Jaffna, affords the most salubrious habitat that could be desired; the bronchitic will

find Kandy admirably adapted to spend the winter in; while any one suffering from neurotic affections will find the Sanatorium of Ceylon,—viz., Newera Eliya,—with its fine, bracing atmosphere and cheerful surroundings, everything that could be desired.

Canary Islands.—C. A. Griffiths, of Cardiff, $^{2}_{\text{Aug.10,'95}}$ thinks that a great point in favor of the Canaries as a winter resort is that invalids can spend the greater part of their time in the open air. The more weakly can be carried about in hammocks, go for drives, or lie about on the *patios* of their hotels; while the more robust can enjoy walking, lawn-tennis, riding, sea-fishing, etc. He points out that in this climate sea-bathing can be indulged in even in winter, and also mountain climbing, from the smaller hills to the snow-clad peak. Choice of residences can also be made from the sea-level to four or five thousand feet above it. The town-residents retire to these mountain resorts in the summer months. He found, even in advanced cases of phthisis, the equable climate very acceptable; and for milder cases he considers it almost perfect.

A. Samler Brown $^{2}_{\text{Aug.10,'95}}$ states that, as there are different climates at different elevations, an invalid may stop in these islands all the year round. In the summer, weeks can be agreeably passed camping out in the mountains, without fear of rain, when the climate is so mild, dry, and equable that even an invalid can sleep in the open air wrapped in a blanket. This is valuable information for those cases of incipient phthisis in which open-air life without risk of chill will effect a cure.

New South Wales.—G. A. Van Someren $^{267}_{\text{Sept.15,'94}}$ discusses the climate of Orange, N. S. W., and states a singular feature of this climate is that cases which do well there always improve in the winter, whether this be open or wet and bleak, always provided the patient takes ordinary precautions as regards clothing, exposure, and diet.

Cases of bronchitis are likely to benefit there, save those with asthmatic tendencies. Emphysema and bronchiectasis also do fairly well, but often had better leave Orange itself and go into some place in the neighborhood to the south, as at Cadia or Four-Mile Creek, where the temperature is more equable and the air dryer and at the same time softer. All cases recovering from pneumonia and yet with asthenia do very well. Cases of phthisis of a fibroid character, such as those so graphically spoken of by the late Sir A. Clarke, do better almost than any others, and that even where pleurisy may have existed and adhesions persist. Cases of phthisis in the first and second stages do well, though in many cases those in the second stage of the disease seem to do very badly. Where cavities exist and expectoration is abundant

and pleuritic, death is accelerated. The same is true of any cases of laryngeal affection, whether simple or phthisical. Asthma also does badly where it is dependent upon or accompanied by a lung affection. Asthmatic cases which have their source in dyspeptic troubles can always be satisfactorily dealt with by persistent attention to diet and medical treatment. Cases in which hæmoptysis exists may do well, but more often do badly.

South Africa.—This region has gained a reputation as one to which those suffering from phthisis may be sent. As G. Casalis and G. G. Eyre [272 Feb.,'95; 15 Aug.] justly observe, there is a fear that we may not fully appreciate the vastness of the country included under the general term South Africa and the variety of climate necessarily found in so large a district. The Cape climate is supposed to be very much the same from the Orange River down to the coast, and many would be surprised to hear that the greatest part of the country is situated about 4000 feet above sea-level. Basutoland and the Transvaal are indeed from 5000 feet to 6000 feet above the sea-level. The authors state that there is as much difference between the Cape, the Free State, and the Basutoland winters as there is between Davos in the Alps and Cannes or the Riviera.

Casalis draws attention to the special characteristics of the Basutoland and Orange Free State climates, claiming that these could have in them stations of high altitude as efficient in the treatment of tuberculosis as either Leysin or Davos in Switzerland. It is premised that the beneficial effects of residence at high altitudes are due not to the cold, but to the rarefaction of the air, and the advantage of the South African highlands is that they combine the characters of high altitudes and rarefied atmosphere with the balmy air of the Riviera.

The Basutoland climate is chosen to illustrate the special characteristics of the district, and is a type of the whole. The barometer shows a yearly mean of about 25.279 inches, with a yearly range of about 0.664 inch. The atmospheric pressure is thus about five-sixths of that at the sea-level, and is remarkably uniform throughout the year. The highest readings occur during the winter months,—May, June, and July. The temperature ranges between 91.40° F. (32° C.) and 25.70° F. (—3° C.), the yearly mean being 57.30° F. (14° C.). It is thus a temperate climate, the winter range resembling that of Cannes rather than the intense cold of Davos. Heavy rains occur during the rainy season from October to March. The most unhealthy months are August, September, and October, when the winds are prevalent. The characters of the Basutoland and Free State climate are thus summarized: (1) rarefaction of air; (2) winter temperature, cold

at night and in the morning, but warm during the day; (3) winter proper lasts only three months,—May, June, and July; (4) dryness and purity of air; (5) ordinary absence of wind in winter; (6) absence of fogs and persistent clouds; (7) intensity of solar light. The writer's experience confirms what Parkes and Jaccoud have remarked with regard to the invigorating effect produced from the first arrival in the more rarefied atmosphere. As a matter of common experience, new-comers not only eat well, but feel inclined to all sorts of exercises, riding and excursioning all round during the day, and never seeming tired. There is nothing of the languor and bodily fatigue so often felt down at the coast. Finally, the author offers the following practical conclusions: As a rule, high plateaux are very beneficial to torpid, lymphatic constitutions,—*i.e.*, natures of a quiet and almost somnolent disposition,—but may prove indifferent or injurious to individuals with an excitable temperament. The rules which govern the selection of patients for the cold heights of the Engadine cannot be fully applied to the more temperate climate of the South African plateaux. The writer strongly insists that the special form of phthisis having risen from pneumonic patches, tubercular from the first or which only become so afterward, should not be sent to either the conquered territory or to the Transvaal. Fever—at least, that type of remittent fever which no amount of drugging seems to quiet down—is a contra-indication. Repeated attacks of hæmoptysis are not by themselves a contra-indication, but add to the danger of patients of excitable temperament. Limited tubercular infiltration with cavernous dilatation, specially of an ancient date and not surrounded by an inflammatory area, may improve considerably, but the rarefied atmosphere renders life precarious when there is much lung-tissue destroyed or incapacitated. Patients that will do well on the high plateaux of the interior are those tubercular cases of a more or less indifferent and torpid temperament, with lesions affecting a chronic or subacute state, which break down during the rigor of a European winter. Patients with a large extent of tubercular deposit, with or without cavity formation, require care for a period of three years at least before there is justification for an opinion that they are likely to enjoy permanent good health. It is safest not to allow any regular employment; but, where this cannot be avoided, in-door work is better than out-door. The kind of employment suggested as most suitable comprises situations as station-masters, clerks, or day-foremen on the railway, waiters at hotels, chemists, bookkeepers, salesmen in stores, teachers, or governesses. With regard to hæmorrhage, both Casalis and Eyre agree as to unsuitability of

the high altitudes of South Africa for those with a tendency to hæmoptysis. The number of patients who succumb to hæmorrhage soon after arrival is appalling. Where, with a large cavity, there has been recent hæmorrhage, a year's residence in the Karoo is advisable before proceeding to the higher altitudes of the Free States.

J. K. Murray, of Whittlesea, Cape Colony, $^{2}_{\text{May 25,'95}}$ asserts that the cases which do best out there are men who have a remnant of former health and physique which can be resuscitated in the open-air life. The soil is too healthy for the bacillus, and the lung-process becomes fibroid. Yet, on leaving England such cases have breaking down of lung-tissue and pyrexia similar to the cases which die. He has noticed among the colonial-born population that, while consolidated apices which have been quiescent for years are not uncommon, scrofulous phthisis runs but a short course.

ELECTRO-THERAPEUTICS.

By GEORGES APOSTOLI, M.D., and JULES GRAND, M.D.,
Associate Editors,
PARIS.

General Considerations.

[Notwithstanding repeated objections and a resistance as determined as it was unfounded, electricity has finally conquered its legitimate place in medicine. The progress in electrotherapy has been very important during the last few years, and this evolution is distinguished by a greater generalization in the methods of application, which complete, as it were, without in any way supplanting, the formerly more localized applications.

During a long time the practice of electrotherapy was confined to the reaction which it was desired to produce by means of electrization, either variable or permanent, in a certain affected point,—nerve, muscle, organ,—with the object of stimulating the dulled functional activity. At present these reactions are generalized throughout the entire organism by the use of the old *static bath*, now restored to favor, and also by the recent acquisitions to the modern instrumental material,—sinusoidal motors and high-frequency alternators.

The influence exerted by electricity upon the phenomena of nutrition and of cellular evolution assures for it an important rôle in the therapeutics of a class of morbid conditions, the knowledge of which is due to the contemporaneous physiological discoveries in pathogenesis, for which honor is due, in the first place, to Pasteur and his school. We are not able here to enter largely into detail, but the facts already acquired in bacteriology —*e.g.*, arrest of microbic evolution, attenuation of the virulence of toxins and their transformation into vaccines (d'Arsonval, Charrin) by means of oscillating currents of high frequency and potency —seem to authorize every hope. They also justify the ambition to generalize the perturbating action of these electric currents—which are extremely powerful, but which the subject does not feel in any way—by applying them, for instance, to intoxications of internal origin—auto-intoxications of Bouchard—as well as to the

various infectious diseases, and this with the double object of combating, within the tissue proper of the organism affected, the swarming development of the virulent micro-organisms and the production of the toxins, while, at the same time, facilitating their elimination. The near future, no doubt, reserves for us many surprises in this order of facts.

"France, America, and Germany are at the present moment each the active centre of an onward movement in electro-therapeutics," writes W. S. Hedley, of Edinburgh, [6 May 4,'95] in a general review on the most modern advances in electricity,—"a movement in which experimental investigation, clinical observation, and organized association go hand in hand to accelerate and to strengthen."—A. and G.]

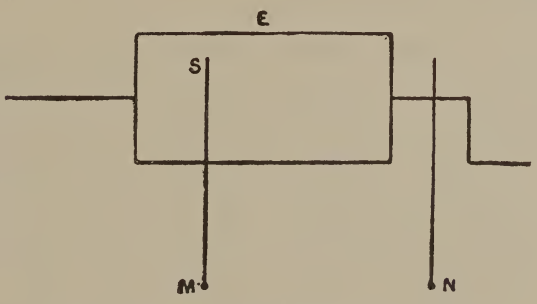
A nomenclature of electric currents for medical purposes, in which these currents are distinguished by their physical character, has recently been formulated by Houston and Kennelly, of Philadelphia. [855 Oct.,'94] They include all the different varieties of currents under four main classes,—viz., continuous, alternating, intermittent, and convective: 1. Continuous currents may be uniform or pulsatory; the latter, although always flowing in the same direction, is not uniform in strength. 2. Alternating currents—viz., currents which periodically reverse their direction—may either be symmetrical or asymmetrical. The former may be sinusoidal or non-sinusoidal (voltaic alternating currents). The asymmetrical alternating current is the type of current produced by faradic coils. 3. Intermittent currents may be oscillatory or non-oscillatory. The former, produced by the discharge of a Leyden jar, correspond to the static induced currents. Franklinic currents are of the non-oscillatory intermittent type. 4. The convective current or discharge is produced by the convection of electrified particles of air or other material. To this type belongs the static breeze.

Alternating Sinusoidal Current.

[Since the communication of d'Arsonval, of Paris, in 1882, on the alternating current, which he termed sinusoidal, this current has been the object of constant study on the part of numerous investigators. From the beginning certain qualities have been attributed to it, which, if they are real, should place this current far above the other electrical methods previously used, both as regards facility of application and the therapeutic effects obtained. The future will show in how much the enthusiasm of those who were the first to use this current is justified. We shall limit ourselves, for the moment, to the citation of the results published.—A. and G.]

Among the numerous advantages claimed by Kellogg, of Battle Creek, Mich., [814 Oct.1,'95] for the alternating sinusoidal current the following may be mentioned: With the exception of the galvanic current, it is the only one capable of exact dosage; the applications do not cause any pain; it calls into play the contractility of the muscles, without inducing pain; it allays suffering in a large proportion of the cases in which the galvanic and faradic currents have proved inefficacious.

Larat and Gautier [720 May,'95] have endeavored to determine the influence of the sinusoidal current upon metabolism in disease, but they were unable to arrive at any definite result, owing to the impossibility of eliminating, in their experiments, certain causes of error, due to the want of uniformity in the diet of the patients under observation. In comparing the reciprocal action of the sinusoidal and faradic currents upon the muscular contraction, the effect of the former is weaker than that of the latter, both



Electro-Chemical Registration. (Janet.)
Revue Int. d'Électrothérapie.

being of the same potential. This is due to the uniformly undulating variations of the first named, which allow of the toleration of much larger quantities of electricity with the sinusoidal current than with the secondary current. The proportion may reach that of 1 to 10. The therapeutic applications of this current have given favorable results in affections of the pelvic organs in women, in chronic prostatitis rebellious to ordinary treatment, in chlor-anæmia, neurasthenia, rachitism, rheumatism, gout, eczema, etc.

Method of Electro-Chemical Registration of the Alternating Currents.—Paul Janet [720 Feb.,'95] has made a communication upon this subject to the Société Internationale des Electriciens. The apparatus which he described consists of a registering cylinder upon which is rolled a sheet of paper saturated with the solution of ferrocyanide of potassium and carbonate of ammonium used in the electro-chemical telegraph of Bain. A stylus of iron or steel

rests lightly upon the surface of the paper. *M* and *N* form two points between which exists the difference of periodical potential which it is proposed to study. The point *M* is placed in communication with the stylus and the point *N* with the axis of the cylinder, to which is imparted a rapid rotary movement. The stylus inscribes all the positive maxima in the form of a disconnected line, in Prussian blue, of which each stroke corresponds with a period of the electro-motor force being studied. This method, as is demonstrated by the author during the course of his communication, enables one to study, in a clear and convenient manner, the different questions relating to periodical currents,—that is to say: 1. The measure of frequency. 2. The measure of variation of phases. 3. The determination of the form of a given periodical current in time function. It does not offer the slightest difficulty of application, and requires merely a simple and inexpensive apparatus; its theory is established without any calculation, whether algebraic or geometrical.

Currents of High Tension and of High Frequency.

[As in the case of alternating sinusoidal current, the therapeutic effects of the currents of high frequency and of high potential are at present studied by numerous observers. Although it is already permissible to accord considerable therapeutic value to this new electrical modality, the researches upon the question are still too recent to enable us to determine in how much they resemble or differ from the resources previously at our command. We do not, however, believe that they can supplant them. Indeed, the new apparatuses of high frequency, like the electro-static machines, appear to modify the circulatory conditions and to increase the neuro-muscular activity, while accelerating the general process of nutrition; this action is manifested by a simultaneous increase in all the functions,—appetite, sleep, muscular and cerebral energy,—but, besides these general reactions which are common to all, the franklinian armamentarium lends itself better to various local treatments than the high-frequency alternators. With it we have a whole series of actions,—sparks, friction, brush, breeze, etc.,—of which the intensity may be gradually increased or decreased, in conformity with special indications. We anticipate not only laboratory experiments, but also, and above all, comparative clinical experiences, which will enable us to more exactly appreciate the respective qualities of these various agents, and to adapt them with greater discernment to the various therapeutic indications.—A. and G.]

D'Arsonval, on behalf of Apostoli and Berlioz, $\frac{67}{\text{July 15,'95}}$ read before

the Académie des Sciences of Paris a note on the therapeutic effects of these currents. The authors have carried out two series of experiments. In the first series, the patients suffering from hysteria, neuralgia, etc., no result was obtained. In the second series, in cases of gout, rheumatism, and glycosuria, the effect was remarkable.

Oudin [2 Dec.15,'95] has, since October, 1892, tried the effects of currents of high frequency without other treatment of any kind in various affections of the skin, with most encouraging results, both rapid and, to a large extent, permanent; especially in eczema, acute or chronic; in psoriasis, and in alopecia. The currents are absolutely harmless and could be used in combination with other methods.

Static Electricity.

The use of the condenser, which admits of the regulation of the intensity of faradic excitations, gave Augustin Charpentier [720 July,'95] the idea of applying the same principle to electro-static machines, and of dosing the electricity furnished by these machines, in the same way as that of a battery current or of induction apparatuses, with the view of obtaining excitations of variable, or rather weak, intensity, and, above all, minimum excitations. He used a Wimshurst machine set into regular rotation by an electrical motor. One of the poles was connected with the earth, and the other furnished the excitation by a conducting wire reaching the nerve, previously exposed and isolated. Upon this conducting wire were interposed two apparatuses necessary for the excitation and serving to graduate it; one was a ball-interrupter and the other a plate-condenser. By modifying the distance separating the plates the intensity of the excitation is regulated and the minimum excitation determined, as was done in operating with the ordinary induction apparatus.

Alfred Rouxeau and Dauly, his pupil, [127 Jan.12,'95] used a similar arrangement in studying the action of these currents, both in exciting nerves and muscles. By using the process of excitation at a distance—that is to say, without any direct contact with the machine—they were able, while retaining a sufficient intensity, to nevertheless diminish it enough to do away with the sparks which spoil the graphic lines, by determining, at the beginning and at the end of the curve of contraction of a muscle, distinct contractions which may be compared to the shocks caused by the opening and closing of the galvanic circuit. The examination of these graphic tracings does not warrant the concurrence with the opinion of Morton, who maintains that his "static induced current" is one

of high frequency; in reality, only a single alternation of the current corresponds with each spark. One of the most remarkable properties of these currents is the fact that, notwithstanding their excessive tension, they allow of an extremely precise localization of the excitations. When the faradic current is sufficiently diminished to be compatible with an exact localization of the excitation, the motor reaction which it determines is weak and much less marked than with the alternating current; the latter, therefore, is superior from this point of view.

Consequent upon several series of experiments which formed the subject of communications to various scientific bodies, H. Bordier [1061 Apr.,'95] has been able, contrary to those having already studied this question,—Duchenne, of Boulogne, in particular,—to affirm that a portion of the skin, subjected to the action of static sparks, undergoes a variable increase of the temperature, which may amount to several degrees.

Dignat [73 July 20,'95] has observed that, under the influence of the static bath, the tension of the pulse was increased in 15 out of 28 cases; 4 times it was diminished and 9 times it remained the same.

L. Marquant, [19 Nov.17,'94] in a recent dissertation at the Lille Medical School, reports good results from the use of static electricity in the treatment of varicose crural ulcers.

Verhoogen [879 Oct.,'94] has observed that, in a case of hysteria being treated by electricity, if the quantity of urine increase, or if it become richer in extractive matters, the prognosis is always favorable.

Labbé [879 Oct.,'94] reports a case of chronic migraine, dating back eight years, in which recovery was obtained in thirty-four sittings of static electricity. Charles Renault [164 Dec.12,'94] recommends the use of static sparks in lumbago.

Faradic Current.

The cutaneous temperature and that obtained by radiation are progressively raised as the excitation increases in intensity, without, however, exceeding a maximum which is reached before the excitation has attained the maximum degree. Very often this increase of temperature continues after the excitant has ceased its action. The rectal temperature undergoes only a very slight variation, which, moreover, does not always follow the same course: thus, sometimes the temperature is increased upon relatively slight faradic excitation and sometimes it is lowered upon marked excitation. The above are the conclusions reached by L. Lecercle, after a series of experiments upon two rabbits. [14 July 31,'95] Therefore

the temperature obtained by radiation gives the best test of the excitation produced by the faradic current; the variations of the thermometer may then reach 2° C. (3.6° F.).

Lahousse [996 Aug.26,'95] has studied the influence of successive induction currents upon the contractility of the heart. Experimenting upon frogs, the author arrived at the following conclusions: The striated muscle of the heart, like the other muscles of the heart, only responds by an initial contraction to electrical excitations when the latter have reached a certain frequency which varies in inverse proportion to their intensity. While, however, the initial contraction of the other muscles only occurs after the frequency has exceeded 250 per second, the initial systole of the heart takes place with a frequency of 13, it being understood that the sufficient current is a minimum current. Another differential point lies in the fact that, contrary to the other muscles, the myocardium sometimes remains totally unresponsive to electrical excitations following each other too rapidly.

Faradization of the Brain.—Excitation of one and the same point of the gray cerebral cortex determines in various regions of the body different phenomena,—such as hypersecretion of the glands, contraction of certain muscles and of the parenchymatous and hollow viscera (bladder, spleen), dilatation of the pupil, etc. In explanation of these various effects of faradization of a single point of the gray cerebral cortex Bochefontaine [24 Nov.17,'95] believes that it is rational to consider them as reflex phenomena. The same opinion is formulated by Vulpian, Schiff, and Brown-Séquard. The destruction of this portion of the brain has been observed without there being any consecutive paralysis of the members or other morbid trouble.

Moreover, Brown-Séquard did not find any movements occurring in the members when he cauterized with a red-hot iron the portions of the cortical layer of the brain designated as the motor centres of the extremities. This is an important fact, and contrary to the hypothesis of the localization of the centres in the external layer of the brain. The author possesses several brains upon which he was able to mark certain points, of which the faradization acted upon the circulation of the blood, increasing or diminishing the arterial tension as well as the number of pulsations, according as the upper cervical ganglia and the pneumogastric nerves were preserved or sectioned. At other points faradization reacted upon the salivary secretion, and at others, again, it caused contraction of the spleen and the intestines.

In an experimental study of direct and indirect faradization of the digestive canal in dogs, cats, and rabbits, S. J. Meltzer, of

New York, $^{59}_{\text{June 15,'95}}$ finds that its mucous membrane offers a considerable resistance to the penetration of the faradic current to the muscular coat; the greatest resistance is found in the mucous membrane of the stomach. Percutaneous and direct faradization of the stomach or the intestines produce no contraction in these parts, but kills the animal sometimes.

In circumscribed inflammatory processes—like a congested ovary, an incipient boil, a painful carbuncle, a swollen and inflamed joint—the sedative effect of high-tension, rapidly interrupted induction currents have been found of very great value. O. L. Williams $^{70}_{\text{Oct.26,'95}}$ reports some cases to illustrate this favorable action, and his statements are fully indorsed by S. H. Monel, of New York. $^{760}_{\text{Nov.23,'95}}$

A. H. Goelet $^{27}_{\text{July,'95}}$ examined into the physiological and therapeutic properties of periodical inductive currents. These currents cover a large field of usefulness. The author states that hot water, which, under the advocacy of Emmet, had for so many years been our main-stay in pelvic diseases, sank into insignificance when compared with this current, properly used. The trouble was that, like the hot-water vaginal douche itself, it was so often misapplied.

As a condenser for regulating the intensity of faradic excitation of the nerves in physiology, A. Charpentier $^{720}_{\text{July,'95}}$ employs either a Gaiffe or a Charpentier condenser or a plate-condenser separated by air, which allows of even smaller capacities, of about $\frac{5}{1\,000\,000}$ microfarad. The results of the author's experiments show that, for regulating bipolar excitation, the use of a plate-condenser is equally advantageous and much more convenient than one which is based upon the distance between the coils. When one extremity of the wire of an induction coil of a faradic apparatus is placed in communication with the earth, there may be obtained at the other extremity of the wire sparks analogous to those of a static electrical machine or of a Leyden jar, which sparks are due to the opening of the induction current. These sparks have been the object of repeated study on the part of physicists. N. Stenberg $^{3}_{\text{July 3,'95}}$ used this process of electrization for the purpose of determining the anæsthetic zone. The conducting wire is placed in communication with the induction wire, which must be surrounded at this point with a rubber coating; then, approaching the free end to within one or two millimetres of the cutaneous surface of the patient, the sparks are made to fly, and in this way one is able to establish the exact limits of the anæsthetic zones. This method has likewise been used for the treatment of certain forms of neuralgia and obstinate headache.

Electro-diagnosis.

Verhoogen [108 May 1,'95] has ably reviewed our actual knowledge concerning electro-diagnosis. In accordance with many other authors he does not hesitate to criticize the Dubois-Reymond coil, and does not admit the theory of ascending and descending currents. He has never been able to observe the slightest difference of action between these two currents.

Destot [3 Aug.17,'95] states that he has never been able to prove the exactness of the laws established by Vigouroux,—that is to say, the increase of electrical resistance in hysterical subjects and its diminution in patients suffering from exophthalmic goitre. He observed a lowered resistance in all patients suffering from amyotrophy,—a diminution which appeared to be due to muscular atrophy. Moreover, when the curve of resistance is followed during a long time, it will be seen that after a period of descent a certain level is reached, and that in cases of peripheral neuritis the curve very often turns upward, which fact coincides with an amelioration in the condition of the patient. This very important fact enables one to establish a favorable prognosis to be soon realized; it is a true sign of regeneration, showing itself very early, before the recuperation of any of the other functions.

Is it possible to recognize periuterine suppurative lesions by the aid of electricity? Apostoli and le Bec do not hesitate to reply in the affirmative. Pichevin [162 July 25,'95] does not believe that the information obtained with electricity is absolutely reliable. He practiced abdominal hysterectomy in a woman, 41 years old, having a fibroma weighing more than one kilogramme, also a pediculated tumor of the size of a fœtal head, which he at first supposed to be a second fibroma, and which was in reality an enormous salpingo-ovaritis, formed at the expense of the left adnexa and containing a litre of pus. This woman supported, without the slightest reaction and without any inconvenience, four or five intra-uterine applications of the galvano-cautery of 100 milliampères lasting ten minutes. Other observations, few in number, it is true, have confirmed his opinion that, in doubtful cases, electricity does not furnish an element of certainty for establishing the diagnosis of periuterine affections, and that no true reliance can be placed upon the galvanic diagnosis.

Apostoli and le Bec, [162 May 25,'95] in an article read before the Société Française d'Électrothérapie, report two new cases favorable to the use of electrotherapy for making a diagnosis in gynæcology. The first case is that of a woman, 29 years old, who, seven years after having followed, without success, an electrical treatment (nine galvano-cauterizations and one vaginal galvano-puncture) for

bilateral inflammation of the adnexa, following a miscarriage, again applied for treatment for a large, cystic tumor of the adnexa. Now, was the tumor suppurative, inflammatory, or purely cystic? Electrical treatment was continued from September 29 to November 24, 1894, sixteen intra-uterine galvano-cauterizations (positive) from 50 to 90 milliampères, and finally a single intra-uterine galvano-cauterization (negative) of 70 milliampères, led to a diagnosis of simple cystic tumor, for the electrical sessions did not occasion any febrile reaction nor amelioration of the symptoms. Laparotomy, which was afterward performed, confirmed the previously made galvanic diagnosis and allowed of the ablation of a serous cystic tumor of the right tube of considerable size. There were no traces of suppuration or of recent inflammation of the adnexa. In the second case, that of a woman 28 years old, there was a small and very hæmorrhagic fibroma, which was treated from February, 1892, to September, 1894, by fifty-one sessions of intra-uterine galvano-cauterization (positive), the dose being usually high. At the onset the symptoms improved, but later on the improvement subsided. Post-operative reaction was absent, and consequently the integrity of the adnexa was diagnosticated. Later on malignant degeneration of the cervix uteri showed itself. Notwithstanding this degeneration, the intra-uterine galvanic tolerance, it should be noted, was preserved. Total abdominal hysterectomy was performed; there was no trace of any lesion of the adnexa and the pre-operative galvanic diagnosis was confirmed. This case shows that the condition of the adnexa decides wholly or in part the galvanic tolerance, and that, moreover, this tolerance does not seem to be affected by a degenerative condition localized in the cervix uteri. The same is not the case when there is degeneration of the body of the uterus itself, as is shown by the case previously related by the author.

Gynæcology.

Ovarian Disorders.—According to Edward Sanders, of New York, [9 Oct.20,'94] we are now entering upon a new phase in gynæcology. The operative method, like its predecessors, will take its proper place, and those only will be submitted to it in whom the indications justify such interference. Considering that about 6 per cent. is the detectable frequency of chronic oöphoritis, making the disease a comparatively frequent one, what shall we do in the way of cure? Medical measures alone are almost valueless. In recent cases these may succeed sometimes; in old-standing ones absolute failure is almost always the rule. Medicine having failed, a resort to surgery is but natural; being a radical measure which

entails a certain danger to life, it must cure quickly and thoroughly. Oöphoritis in itself carries but little danger to life with it, pus-tubes and ovarian abscess being the only complications that make it dangerous. The operation of salpingo-oöphorectomy is dangerous to life; and to subject a patient to the risk of losing her life by operation when life is not endangered by the disease itself is only warranted when all other means have failed. Goodell says that more deaths result from the operation of removing the tubes and ovaries, in the hands of even the most successful gynæcologist, than from the disease itself. The same statement is made by Reamy, of Cincinnati. The author states that operators themselves are becoming dissatisfied with the results (Emmet, Lusk, the late C. C. Lee, Dolério, Mundé, Polk, Pozzi, Martin, and others, who believe that eight-tenths of the women operated upon have submitted needlessly to mutilations) and advocate conservatism, greater care, and circumspection. If, therefore, medicine offer no hope, and surgery is only to be considered the court of final resort and is to be restricted to a smaller field than it at present fills, what is there to take their place in the combating of chronic oöphoritis? Electricity. The author urges the advisability of a resort to this agent, more especially galvanism, even in those deplorable cases of operated, yet uncured salpingo-ovarian disease. He gives the relations of the after-treatment of four cases of salpingo-oöphorectomy by electricity, showing the most favorable results.

At a meeting of the New York Pathological Society the president [59 Nov. 24, '94] presented a portion of an ovarian tumor exhibiting electro-punctures. It had been removed by Emmet from a woman, 46 years of age, who died of shock. She had been under treatment in London for a long time, and while there one hundred and thirteen electro-punctures had been made during a period of a year and a half. The tumor, nevertheless, had continued to grow. It was a large, lobulated mass, the central portion of which was a rather large cyst; the greater part was composed of fibrous tissue. Microscopical examination showed the tumor to be a fibro-sarcoma. The spots, which from their gross appearance were at first supposed to be hæmorrhagic spots, were really areas of necrosis. Scattered through the tumor were calcareous masses. The clinical record was, unfortunately, very incomplete.

Metritis.—Boisseau du Rocher [1153 June 29, '95] recommends intra-uterine electrolysis as a treatment of metritis, salpingitis, and uterine hæmorrhage, a silver electrode being employed. A current from 7 to 10 milliampères in intensity is sufficient, left *in situ* five to ten minutes, the silver positive pole being placed in the uterus.

The oxychloride of silver, which is formed under the influence of the current, is an excellent disinfectant.

G. Betton Massey, of Philadelphia, [59 May 25,'95] advocates, in the galvanic treatment of hæmorrhagic endometritis, the use of an intra-uterine electrode composed of zinc freely amalgamated with mercury. By this means the zinc surface is always kept smooth, lubricated, and non-adhesive, and a new value is attained in the use of a nascent oxychloride of mercury in addition to the oxychloride of zinc with far more efficient alterative and antiseptic results.

W. Koupitonoff [586 No. 48,'94] used Apostoli's method, slightly modified, in the treatment of 14 cases of chronic para- and perimetritis. There were 8 recoveries and 2 marked improvements. One treatment was unfinished and in 1 case there was aggravation due to having used too strong a current.

Uterine Tumors.—G. B. Massey [23 Aug.,'95] records a case of large, œdematous myoma treated and cured by him by nine electropunctures made through the abdominal wall (from September, 1891, to March, 1893). The intensity was progressively increased from 65 to 300 milliampères. The tumor, which extended four and one-fourth inches above the umbilicus, gradually diminished to the size of a large orange. It had at first been mistaken for a large cyst of the ligament, for upon palpation it gave the sensation rather of a fluctuating than of a soft tumor, and it is interesting to note that, owing to the modifications taking place in the tumor in the shape of the diminished volume and of the consistency under the influence of strong electric currents outwardly applied, the author was finally led to the diagnosis of a fibromyoma.

Lapthorn Smith, of Montreal, [59 May 25,'95] states that the plea for the early treatment of fibroids by electricity is quite as just as that for operative treatment. One serious objection to the former is the length of time it takes to apply it properly. The present status of the electrical treatment is not so good as it should be, because it has been tried by men of insufficient experience and therefore has been found wanting. Although at present the tide of surgery is in its full flow, electricity will find an honorable place in the treatment of women who wish to keep their ovaries.

W. L. Burrage [99 June 13,'95] has shown to the Obstetrical Society of Boston a multiple fibroid of the uterus weighing four and one-fourth pounds, from a colored woman, 39 years old, who had had eighteen intra-uterine treatments (50 to 100 milliampères N.) of five minutes each during three months. At the end of this time the tumor had grown perceptibly and was distorted to such an extent that the intra-uterine treatment was no longer possible. Then a galvano-

puncture (100 milliampères N.) was made. At the end of seven months she was much relieved, as regards her symptoms, but the tumor had increased one-third in size and reached nearly to the umbilicus. She was operated upon. There were no adhesions, and the only trace of the electrical puncture was a black spot the size of a pin's head. This case exemplifies the rule that electrical treatment does not diminish the size of a tumor in the majority of cases of fibroids and that it causes no adhesions.

Paul F. Mundé [59 Oct.19,'95] reported 130 cases of fibroids of the uterus. In 29 cases abdominal hysterectomy was performed. All of them had recovered. In 46 cases the symptoms were improved by ergot, curetting, and intra-uterine galvanization. In 3 cases galvano-puncture was practiced through the vagina and a current up to 150 milliampères was passed for fifteen minutes, under anæsthesia, only one sitting being given in each case. In all of them the tumor gradually disappeared.

G. W. Cushing, of Boston, [23 Sept.,'94] believes that electricity in uterine tumors is both useless and dangerous.

Eugene R. Corson [27 Sept.,'95] read a paper before the Medical Association of Georgia, on the Apostoli treatment of uterine fibroids, and had been greatly satisfied with its results in the nine cases reported.

Basing himself upon the experiments of Weiss, Levy, of Paris, [126 Oct.15,'95] demonstrates that the continuous current, even in small doses, destroys the striated, or smooth, muscular fibre, and thus explains the physiological death of the fibroma. This result, however, is not obtained in all cases.

Low ampèrage (below 75 milliampères) is recommended for the treatment of uterine fibroids by J. H. Gunning, of New York, [27 Jan.,'95] He thinks it is best to keep out of the uterine canal, and uses a special electrode with a non-metallic surface, having a movable, insulated cup filled with potters' clay. He gives the history of five typical cases.

Franklin H. Martin, of Chicago, [23 July,'95] thinks the cases upon which electricity can do the most satisfactory work are the large, hæmorrhagic tumors, the subjects of which are anæmic, with pelvic pain and pressure, digestion ruined, bowels constipated, and debilitated general condition. Galvanism is also justifiable in cases of the hæmorrhagic variety not of large size, the subjects of which are near the menopause. However, he would not recommend this treatment when patients are under 40 years of age, and then expects more satisfactory results from operative procedures. Still, he cannot admit that galvanism ever does harm in the cases or produces peritoneal adhesions, except in fatal doses.

From personal experience and from statements by several authorities (Keith, Stevenson; A. Martin, of Paris; Kimball, Treeman, Delatour, J. H. Martin, and others), it appears to George Wackerhagen, of Brooklyn, [157 Jan.,'95] that the two principal and almost exclusive methods of treating fibroid tumors of the uterus are: (1) laparotomy; (2) electricity. In the discussion Fowler stated his belief that the method of Apostoli has had its day and those who still cling to the method are those who have a dread of incurring the increased risk which hysterectomy involves. Delatour, who has seen electricity used to a considerable extent, has never observed any elimination of the size of a fibroid. Wunderlich believes that it is not necessary to use the high voltage which is so frequently employed.

Chronic Gonorrhœa in Women.—Barthelemy [287 Nos.8,9,'94] has obtained good results in cases which were refractory to repeated curetting. He applies from 15 to 20 milliampères for twenty-five to fifty seconds to the urethra, para-urethral crypts, and Bartholini's glands. In the uterus he allows 40 to 50 milliampères for three to four minutes. The positive pole is used. A session is given every sixth day, and the treatment continued up to two months.

Vaginitis.—Le Bloud and Lévy have treated, with good results, a series of cases with the anode introduced into the vagina filled with salt water. From five- to thirteen- minute sittings were given twice a week—of 25 to 80 milliampères. But a much stronger current may be employed without doing harm.

Cataphoresis.

From the numerous experiments made by Aubert [211 June 16,'95] with hydrotic or anhydrotic alkaloids the author concludes that, under the influence of the continuous current, penetration only occurs below the positive pole, in the direction of the cataphoresis. Later he was able to arrest the local sudation caused by pilocarpine by causing to penetrate below the negative pole a solution of either acetic or chromic acid.

Referring to the transportation of the ions into the organized tissues, and resuming the experiments made in 1892 by Aubert, concerning the penetration of pilocarpine under the various electrical methods, which he had termed "method of sudorific impressions," Labatut [211 Nov.17,'95] studied the electrical processes capable of producing electrolytical exchanges in the tissues. These are: (*a*) Fixed polaric method. 1. Continuous voltaic current. This is the current of electrolysis *par excellence*. 2. Continuous current with the electro-static machine. With this current there is no penetration of electro-motor force into the tissues, no electrolysis,

and no sudation. 3. Sparks of the electro-static machine. Here the self-induction caused by the instantaneousness of the discharge forms a cause of deep penetration of this discharge; hence electrolysis, penetration of pilocarpine, and sudation. (*b*) Method with inverted polarity. 1. Alternating currents. Thanks to an arrangement of which the author gives a description, he has been able to prove that the introduction of the pilocarpine takes place simultaneously at the two poles; very great with weak frequency, it decreases in measure as the frequency increases. 2. Leyden jar. No electrolysis on account of the high frequency of the discharge. 3. Faradic current. This method is an alternating current with low, weak frequency. The positive and negative waves have not the same voltage. There is, therefore, simultaneous introduction of pilocarpine at the two poles, with predominance at the pole of the greatest voltage,—that is to say, at the positive pole.

According to McGuire, $^{19}_{\text{June 15,'95}}$ neuralgias in superficial nerves (such as branches of the trigeminus) are always best treated by cocaine cataphoresis, so far as the immediate relief of the pain is concerned.

This method has been found quite effectual by W. N. Sherman $^{77}_{\text{Nov.,'95}}$ for topical medication in various local lesions—such as tumors, rheumatic and gouty swellings, and various skin diseases —by painting with iodine. He used cocaine solutions to produce local anæsthesia for small operations. He has successfully used chloroform for the relief of bilious colic. A combination of aconitine with cocaine is more effectual than either alone, and helleborine (3 or 4 drops of a 1-per-cent. solution) is superior to either as a local anæsthetic.

Three cases of morbid growth have been reported by G. Betton Massey, $^{144}_{\text{Mar.,'95}}$ which he has treated by local electrolysis and zinc-amalgam cataphoresis. The active electrode, which is always positive, is a freely-amalgamated zinc surface of one or two square centimetres' area, which is held successively against all portions of the bottom and edge of the excavation. From 150 to 300 milliampères are sufficient. He uses, also, a zinc-amalgamated electrode, in cases of hæmorrhagic and purulent endometritis, when the canal is sufficiently patulous for its easy insertion.

Labatut, Jordanet, and Porte $^{996}_{\text{May 10,'95}}$ treated the articular manifestations of gout and rheumatism by the electrolytic introduction of lithium. The diseased part is placed in a bath of chloride of lithium and a current is passed through, which must not be stronger than 20 milliampères per square decimetre of the surface, otherwise it will prove painful.

Miscellaneous.

In connection with transformation of galvanic currents into undulating and alternating currents, the experiments of Debedat, of Bordeaux, [3 Aug.17,'95] enable him to formulate the following conclusions: 1. If the inversion of the polar formula, to which formerly the prime importance was accorded, be not admitted as characteristic of the reaction of degeneration, and if, like Remak, we admit that the most important feature of muscular degeneration consists in the abolition of faradic excitability, it might be defined simply as incapacity of a muscle to show combined shocks, or tetanic contractions, under rapid electrization. 2. Rapidly interrupted or inverted galvanic currents, which are controllable in form, may replace, in the therapy and diagnosis of muscular affections, the induction currents which it is practically impossible to control, up to the present.

Baraduc, [73 July 20,'95] in referring to the globular form of certain electrical and vital phenomena, recalls his previous communication concerning biometry and the electro-vital balls which he has photographed. There are two varieties of the latter,—the will-o'-the-wisp-like spark and the electric drop. Notwithstanding the experiments of Micycovsky, of Wilna, the author insists upon the fact that the balls found in the sensitive plates in photography are an emanation of the vital fluid of Odd, of human magnetism. In a paper to be published shortly he will give numerous proofs and special graphic illustrations of the human fluid which is distinguishable from the electrical graphics.

The disintegration of organic tissue by high-tension currents is considered by Inglis Parsons, [2 Mar.16,'95] who has continued his previous researches and has modified his apparatus with the object of giving the current used by him a much greater electro-motor force with a lesser quantity. He used a transformer capable of developing from zero to 150,000 volts, according to the pressure required. His experiments were made upon fresh beef. It was very difficult to obtain sections after the passing of the current, as the meat fell into *débris*. The destruction of the muscular fibres was the same throughout the entire course of the current, and was not limited, as with the continuous current previously employed, to the portions directly in contact with the poles. There seemed to be very little diffusion.

The chemical action of electrolysis upon bacteria has been studied by S. Krüger. [868 June 29,'95] With non-polarizable electrodes the continuous current seemed to arrest the growth of the bacteria, but did not kill them. With polarizable platinum electrodes the organisms were destroyed. The time required is shorter, as the

current is stronger. The author has studied the action of electrolysis upon the products of bacteria. By the use of cultures previously subjected to electrolysis he was able to immunize animals. The agar test showed that the bacteria were killed and the toxins destroyed; only the immunizing power persisted. Smirnow had demonstrated this fact with the bacillus of diphtheria. Krüger verified the experiment and arrived at the same conclusions.

M. A. Cleaves, of New York, $\frac{59}{\text{Dec.8,'94}}$ in a paper read before the American Electro-therapeutic Association, discussed the use of the electric light for illuminating cavities of the body,—as the eye, ear, and throat. She stated that she had employed it in the treatment of disease and found it capable of being made a very powerful therapeutic agent. The author reported the following cases: In one case of cervico-occipital neuralgia of great severity, complicated with supra-orbital neuralgia, the application of electric light gave relief from pain to the patient for several hours. In another case of intense pain in the roots of the cervical cord, the only way the patient was able to get sleep without hypnotics was by having an electrical lamp placed directly over the cervical cord. In another patient, suffering from anæmia and enuresis, a decided improvement was noted after sixteen treatments, extending over a period of one and a half months. The patient gained six and one-half pounds during the first two weeks and seven pounds more during the following six months. The electric-light bath was given for twenty minutes each time. The patient was placed upon a stool with the entire body exposed to the rays of light, special attention being paid to localizing it at the lumbar and sacral plexuses. Gatchkowski, of St. Petersburg, in 1892, also reported twenty-seven cases, chiefly of rheumatic and neuralgic pain, which he had quickly cured by the electric light.

G. Meeker $\frac{814}{\text{Mar.1,'95}}$ has been able, from the observation of a number of cases, to affirm that the red light will act directly upon the arterial blood; the yellow will stimulate the nervous structures, these abounding in elements which give that color; and the blue cools the arterial blood, but intensifies the venous. The effects of the blue light in arresting the development of bacteria and other micro-organisms have been abundantly shown beyond dispute.

[Before the Société Internationale des Electriciens, in Paris, Maréchal demonstrated, with an electro-chemical actinometer, that luminous energy is transformed into electrical energy. This change is not effected through the calorific power of the light, but by actinism. The transformation takes place in all the divisions of the spectrum. These experiments demonstrate the close con-

nection existing between the solar light and natural phenomena,—such as terrestrial magnetism, the variations of the magnetic needle, earth-currents, etc.,—and the absolute importance of light and color in all operations of the universe. Is it not probable that these agents enable us to deal more successfully with abnormal conditions of the body which have heretofore been found intractable and vexatious?—A. and G.]

The Electrical Brush.—Witkowski [19 Dec.8,'94] and others recommend the galvanic brush in sciatica, which instrument he believes to be far superior to the ordinarily employed faradic brush in intensity of action, exactness of dosage, and efficacy. The galvanic excels the faradic brush in the intensity of cutaneous irritation, which can be localized and regulated quite accurately. It is useful more especially in impotence and sciatica; in tabes dorsalis it exercises a most favorable influence on the bladder troubles, and the beneficial results last for weeks, months, and even years.

In a work recently published Julius Althaus [22 May,'95] gives his views on the uses and limits of usefulness of electricity in medicine. He deals with the three currents ordinarily used in the treatment of disease, giving special attention to the constant galvanic current, which he considers by far the most important form of electricity for medical purposes. One very striking and instructive feature of the work is the comparatively feeble strength of current recommended. For the brain $\frac{1}{2}$ to 2 milliampères, with an effective electrode of 16 to 130 square centimetres, and for the spine 2 to 10 milliampères, with an electrode surface of 40 to 130 square centimetres, give a fair idea of the intensities and densities used. The long experience of the author on electricity gives much interest and value to his individual views.

Arthur Sperling [4 Apr.,'94] states that very weak galvanic currents, of $\frac{5}{10}$ milliampère or even less, have a very pronounced therapeutic action in appropriate cases, and are preferable to more intense currents, which are irritating. The application should not last longer than one minute, and there should be an interval of at least forty-eight hours between the *séances*. Every galvanization, however weak be the current, causes, by virtue of the law of preservation of force, a reaction in the organism. The assertions of Sperling have been severely contested at the Medical Society of Berlin; Mendel, Remak, Oppenheim, and Senator, each in turn, reproach him with agreeing with the ideas of those who assert that electricity merely acts by suggestion.

Norton, of New York, [59 Feb.9,'95] draws the following conclusions: Strong galvanic currents depress nutrition of tissues and produce structural changes leading to physiological atrophy (20 to 100

milliampères). Mild currents stimulate nutrition and produce physiological hypertrophy (1 to 8 milliampères). Negative pole is indicated specially in chronic inflammation where newly-formed fibrous tissue or exudate occurs. Positive pole is rarely indicated, and, if so at all, upon the basis of an electrotonic effect to produce sedation of neuralgic pain in superficial nerves. The main uses of the faradic current are to tetanize muscle and cause sedation of pain. The tetanizing current, as now employed to treat paralyzed muscles, is injurious, since it enfeebles the muscle and causes atrophic structural changes.

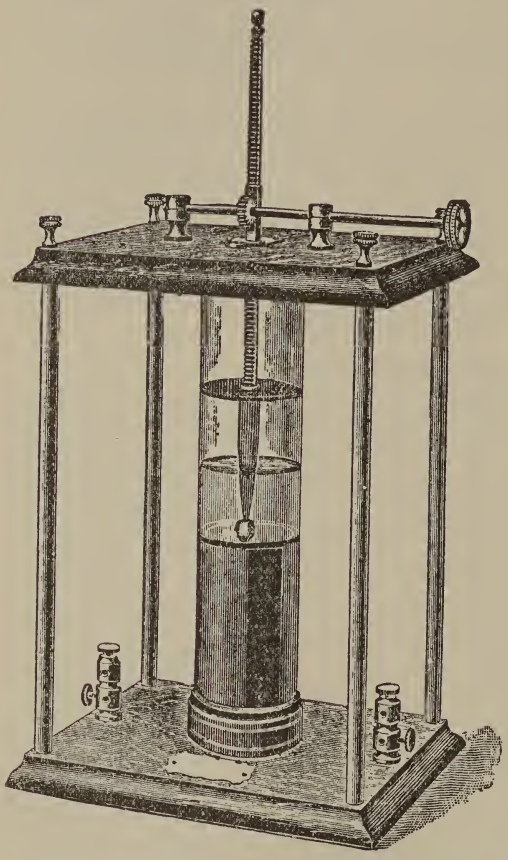
The franklinic current of static electricity is an adjunct of great efficiency in practice. It affords a most convenient means of stimulating the peripheral distribution of the nerves in the skin. It produces profound alterations in the metabolism of the individual, increasing the natural waste-products and diminishing the tonic or by-products. For this reason it is specifically indicated in cases of malnutrition, whether local or general.

Technique—Instruments.

A static induced current-controller and regulator has been devised by Margaret A. Cleaves, of New York. $^{59}_{\text{v.47,p.169,'95}}$ Inclosed in a glass tube is a cup of pure carbon. This cup is secured and forms one of the terminals; the other terminal is a tapering carbon rod, fastened to a metal rod and wrapped with a sponge at the apex. By turning a screw-head on top of the rheostat the carbon point is raised and lowered at will. The glass is filled with water until it touches the sponge on the end of the carbon rod. The rheostat is wired on the principle of a shunt circuit and has double binding parts,—one to receive the wires from the Leyden jars and the other for the conducting cords distributed to the patient. With this instrument it is possible to give to the current the desired strength for any particular application, and this can be done to such an extent as to produce the most violent muscular contractions without the patient suffering from any pain, jar, or shock. (See illustration on following page.)

D'Arsonval $^{720}_{\text{July,'95}}$ describes a universal apparatus for measuring currents of high and low frequency. None of the galvanometers of ordinary intensity can be used with currents of high frequency on account of the self-induction, which renders them absolutely impenetrable for those currents. In order to measure the currents the author uses a simple metallic wire stretched out in a straight line and attached at its two ends. The current, heating this wire, lengthens it more or less; this lengthening is measured by the arrow, which crosses the centre. For this purpose it is only

necessary to suspend in the centre of the horizontally stretched line a light weight, holding a micrometer engraved upon glass. By placing the micrometer in the focus of a projection apparatus an image is obtained upon the board, which undergoes a decided displacement when the slightest current passes through the wire. The apparatus can even be transformed into a galvanograph by attaching the centre of the galvanometric wire to the middle of a drum connected to an ordinary recorder. Thus arranged, the apparatus gives the average intensity of a continuous or alternating current, whatever be its frequency. It is therefore a universal galvanometer which is likely to supersede the other models.



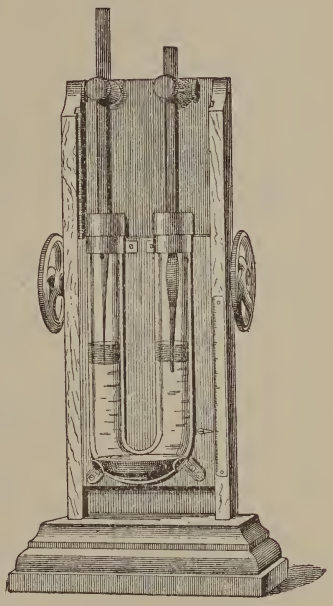
STATIC INDUCED CURRENT-CONTROLLER. (M. A. CLEAVES.)
Medical Record.

A new aperiodical galvanometer has been invented by Arnoux and Chauvin. [1061 Oct. 15, '94] It introduces the use of a mobile galvanometric dial in a magnetic field. The magnetic field in which the mobile circuit moves is produced by a circular magnet of steel or tungsten, of which the coercing force is considerable. The constant force which furnishes the equilibrium to the antagonistic magnetic pair is represented by two spiral springs of aluminium bronze, through which the current is led into the mobile, circular circuit. This is kept rigid by two rods of Elmore electrolytic copper, which is highly conductible; to these rods is due the very perfect aperiodicity of the apparatus.

Henry Bordier [211 July 21, '95] presented a new liquid rheostat to be used in electrotherapy. It is a happy modification of that of

Bergonié, of Bordeaux. The improvements devised by Bordier have enabled him to overcome three important drawbacks: 1. The first of these is common to all liquid rheostats and consists in the fact that the intensity passes suddenly from zero to a certain value as soon as the conducting piece comes into contact with the liquid. 2. When the rheostat is at its lowest the resistance which it opposes is still too great. 3. For faradic currents, which are so useful in many cases for graduating and causing the current to start gently, the rheostats, even at the maximum of resistance, allow of the passage of too great an intensity.

These three desiderata have been filled in a manner as simple as complete in this new rheostat with three liquids superposed. The full description is too long and cannot be given, but the annexed cut shows the instrument clearly.



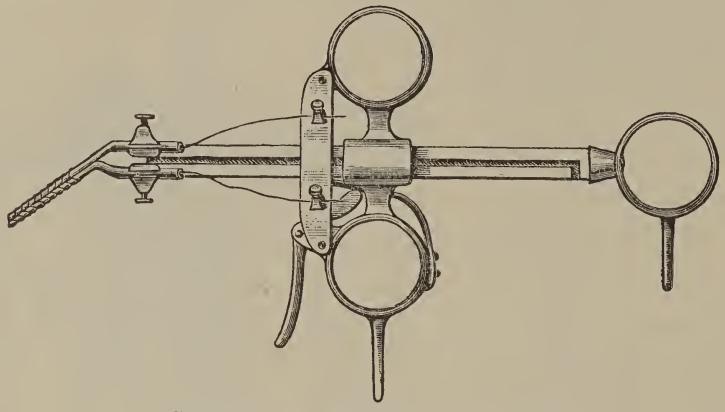
New Rheostat. (H. Bordier.)
Lyon Médical.

A galvano-cautery handle with rheostat is described by Schleicher [868 July 20,'95] which is intended to introduce a resistance in the circuit of the galvano-cautery loop in proportion as its own electrical resistance diminishes through the fact of its retraction. At present, in order to avoid the overheating of the wire at the end of the operation, it is necessary, particularly with large loops, to interrupt the passage of the current from time to time, which is not without its inconvenience. With Schleicher's instrument, which consists of a rheostat formed by a German-silver wire wound around a plate of glass or slate and placed upon the lower end of the ebonite handle, a considerable intensity may be used from the first, which remains equal throughout the entire operation without there being any risk of melting the wire, even in the open air.

Klingel [116 Nov.,'94] also describes a new galvano-cautery handle which is an improvement upon the one described by Hartmann. Two isolated metallic rods have at their extremities the tubes containing the metallic wire. One of them also holds a ring for the thumb and the other two rings for the middle and index fingers; the bringing together of these rings stretches the wire of the

metallic loop. By pressing upon a spring fixed upon one of these rings the circuit is closed and the loop is brought to incandescence.

Carl Wegele $\frac{116}{\text{Apr.,'95}}$ describes a new gastric electrode, which consists of a flexible metallic spiral which responds to any curve, owing to the great number of turns in the spiral (2 per millimetre, or 1500 turns in the 75 centimetres forming the length of the sound). The diameter of the spiral is only 2 millimetres, and it only very slightly modifies the calibre of the gastric sound in which it is placed; this allows of electrization and lavage of the stomach in one *séance*.



GALVANO-CAUTERY HANDLE. (KLINGEL.)
Therapeutische Monatshefte.

Therapeutics.

A. D. Rockwell, in a clinical lecture ("Neurasthenia *vs.* Lithæmia," $\frac{1013}{\text{v.3,Series 4}}$), says that, in differentiating between the two forms of dynamic electricity for the relief of pain, he has often noticed that when the parts were sensitive to pressure the galvanic current was the most effective, and when pressure was grateful and afforded relief the faradic current seemed to be indicated.

Lewandowski $\frac{152}{\text{Aug.2,'95}}$ has studied the action of electric currents in thirty cases of cicatrices produced by various causes, such as crushing, burns, prolonged suppuration, phlegmons, operations, etc. The galvanic current used averaged from 5 to 8 milliampères. When the faradic current was used, it was just sufficiently strong to induce contractions of the muscles innervated by the radial. He used large-surface electrodes (200 square centimetres) for the positive and 100 cubic centimetres for the negative electrodes. The number of *séances* varied from forty to sixty and the duration of each from fifteen to thirty minutes. The two currents, galvanic and faradic, were combined in the same appli-

cation. According to the author, the electrical treatment makes the cicatrices grow paler, softens the adhesions, and causes the deformities and functional disturbances, to which they give rise, to disappear.

For fibrous ankylosis, F. W. Gwyer, of New York, [673 Aug.,'95] employs the continuous current directly through the joint, with an intensity varying from 40 to 150 milliampères and a duration of ten to thirty minutes, according to the susceptibility of the patient to pain, the condition and amount of reaction of the skin, the size of electrodes, etc. He finds that the best results are obtained in cases of injury. In cases due to disease the results were slower, and in two out of five cases the method entirely failed.

S. Leduc [1061 Nov.15,'95] relates a case of arthritis due to Eberth's bacillus which he cured by electricity, and states that in the conditions following inflammation, whatever be the nature of the inflammatory agent, continuous negative currents, properly applied by the monopolar method, have a resolutive action superior to that of other means.

Duboc, of Rouen, [203 Dec.1,'95] reports a grave case of cerebro-spinal neurasthenia which had been treated without success by S. Weir Mitchell and Playfair,—milk, rest, massage, superalimentation etc., having been prescribed,—and which was completely cured by the author by franklinization, electrical friction, sparks, and the breeze. Under the influence of the treatment, which lasted three months, with two *séances* per week, all the symptoms disappeared, —insomnia, vertigo, agoraphobia, headache, extreme fatigue, dyspepsia, etc. The author recommends the use of machines with large platforms.

A. F. Plicque [35 Nov.,'95] has noticed that every sudden variation in intensity of even a moderate current (5 to 10 milliampères), applied to the left shoulder, is often followed by nausea, faintness, and even alarming syncope. This fact, which is due to the morbid synergies of the pneumogastric, may be compared to the alarming symptoms and deaths occurring under chloroform, which are, it is well known, especially frequent after reduction of dislocation of the shoulder.

C. R. Dickson, of Toronto, [282 Sept.,'95] stated that, by treating angioma by this method, the chances of disfigurement were much less than by other measures. Excision is often useless, the cautery sometimes disappointing, and scarifications, applications, and injections not free from danger. Negative pole and mild currents are convenient for small and superficial angioma. In the cavernous, destruction of tissue might be called for. The method has been applied, also, in 120 cases of goitre with gratifying success.

R. B. Mitchell [6 Sept.8,'94; 81 June,'95] reports three cases of rectal prolapsus which were relieved by the use of the continuous current. One pole (he does not state which) was placed within the sphincter and the other over the sacral region. The current passed for five minutes; the strength is not indicated. One or two treatments a week were given. From four to eight months were required to bring the desired result.

W. Brock [1 Sept.7,'95] has treated 13 cases of nervous gastralgia and an equal number of cases of habitual constipation by means of direct galvanization, the negative electrode being introduced into the stomach and positive applied to the lumbar region of the vertebral column. From 15 to 20 milliampères were passed for five minutes three times a week. Out of the 13 patients suffering from nervous gastralgia 2 were cured, 6 improved, and the rest showed no favorable results. The treatment has been more successful in the 13 cases of constipation; 6 were definitely cured, 3 were more or less improved, and 4 only received no benefit.

Giller, of Marseilles, [14 Sept.4,'95] combines the same treatment with massage in cases of habitual constipation. Out of 95 cases he obtained 30 complete cures, 41 cases were more or less improved, and 24 had no benefit from the treatment.

Julius Althaus [2 Jan.26,'95] gives the details of two cases in which he was enabled to produce a passage from the bowels by means of electricity in a case of intestinal obstruction. He used the primary faradic current, one pole being introduced into the rectum and the other—a moistened conductor—being applied to the parietes,—chiefly in the region of the sigmoid flexure. The strength of the current was gradually increased until the patient experienced a decided feeling of vibration in the bowel. Less than two hours after this application the patient had a copious movement.

Doumer [1153 May 11,'95] thinks that the most efficacious forms of electrization, in cases of intestinal obstruction, are the percutaneous galvanism and the rectal method. The percutaneous galvanism consists in applying to the abdominal walls two well-moistened electrodes, six or eight inches in diameter, and moving them slowly over the surface, particularly over the iliac fossæ, while a current of 15 to 20 milliampères is turned on and interrupted four times a minute approximately. When no sufficient evacuation is obtained after two attempts of ten to fifteen minutes each, from two to three hours apart, recourse must be had to the well-known intra-rectal method of Boudet, of Paris. This treatment is contra-indicated (1) when the bowel is supposed to be ulcerated; (2) when the patients have been weakened by attempts at relief; (3) after frequent purgation.

SURGICAL DRESSINGS.

By the Central Editorial Staff.

submitted for commentation to
F. VAN IMSCHOOT, M.D.,
Associate Editor,
GHENT.

Dressings.

A. Wölfler, $\frac{88}{\text{Nos.20,21,'95}}$ in considering the question propounded by Büdinger as to whether wounds healing by first intention ever contain pathological cells, was able to demonstrate more or less numerous staphylococcous colonies in four cases of absolutely pure wounds, kept rigorously aseptic, and which healed by first intention. As shown by Nuttall and Buchner, cell-free blood-serum possesses bactericidal properties; during the healing of the wounds Wölfler also found changes in the number of staphylococci contained in the secretion a few hours after operation in two cases, but later none were discoverable. The wound-secretions had destroyed the cultures. If streptococci were intentionally placed in specimens of wound-secretion taken at various times, it was found almost always that, during the first few hours after removal, the specimens possessed bactericidal properties. Circumscribed inflammation and suppuration were regarded as a second local protective agent, and a third, resulting from the latter, was the wound's rapidly diminishing capacity for absorbing bacteria. Apart from these local protectives, the blood itself forms a potent general defensive agent against the inroads of micro-organisms.

In order to ascertain whether a wound once infected with pyogenic organisms can be disinfected by any amount of washing or syringing with antiseptics, Haenel $\frac{69}{\text{No.8,'95}}$; $\frac{15}{\text{July}}$ infected a number of rabbits by packing wounds reaching into the muscular substance with gauze tampons containing virulent staphylococci and streptococci. After a few hours the wounds were opened and well-syringed out with a 3-per-cent. carbolic solution, on the one hand, and a 6-per-cent. salt solution, on the other. This was repeated, day by day, and the results showed that not the slightest difference occurred in the course taken by the different cases. This would

tend to prove that, when once infection of a wound exists, the surgeon must depend mainly on the natural germicidal powers of the patient, assisted by free drainage and the removal of all the secreted exudation by establishing an osmotic stream away from the wound.

Reichel [2019/'94] found that in rabbits very extensive phlegmonous processes could be brought to an end by free incision, extirpation of the pus-infiltrated tissues, and plugging the wound-cavity with antiseptic gauze. If severe general infection is present, the operation, whether carried out antiseptically or aseptically, is without avail. He concludes that strict asepsis, not antisepsis, should be adopted in the treatment of fresh wounds, and that infected wounds and phlegmons should be laid open under aseptic precautions and subsequently plugged with antiseptic gauze, secondary suture being adopted.

Schimmelbusch, [336/No.11,'95] in support of this view, conducted an elaborate series of experiments to determine whether the energetic use of antiseptic irrigations had any value in destroying the active germs found in suppurating wounds. He observed that, in animals infected with blood taken from the hearts of guinea-pigs that had died of streptococcous infection, the most thorough disinfection with sublimate solution immediately after infection invariably failed to save life. From this and other experiments he concludes that the germs of infection very quickly penetrate into the depth of the wounds, and are thus protected from antiseptic lotions. The same author, in connection with G. Ricker, [54/Apr.1-29,'95] also studied the rapidity of absorption of bacteria from recent wounds. While they perceive that lymphatic absorption of bacteria has long been recognized, they show that micro-organisms are also disseminated actively along the blood-vessels, even more quickly from a fresh, bleeding wound than from one in which there has been time for reparative changes to take place.

[An editorial writer [15/June,'95] remarks that such a fact in no way contra-indicates local treatment, since it is pointed out that, if the local focus of disease can be eliminated, the natural germicidal powers are quite capable of dealing with those organisms which are not virulent, and even with some of the more active forms, provided they are not present in the blood-stream in too great numbers.]

Robert Craig Dun [36/Mar.,'95] states that wounded tissues should be protected against the chemical action of strong antiseptics, and that nothing but indifferent solutions should be permitted to come in contact with them. The action of micro-organisms depends upon the number introduced. Particular attention should be paid

to the avoidance of the irritation caused by drying the parts during an operation.

Zeidler [336 Apr.6,'95] first began treating infected wounds by the aseptic method in 1888. During the last year this has been the rule. The results under aseptic treatment are distinctly better than those which follow rigid antisepsis. The secretion is much less, the development of granulations proceeds normally, and, even though the dressing is changed very infrequently, there is no odor. As long as provision is made for the free outflow of pus, the wound runs a normal course. The important points in the treatment of suppurating processes are free opening and free drainage; the disinfection of the wound is not only unnecessary, but distinctly hurtful.

The method employed by Zeidler [336 Apr.6,'95] is the following: The field of operation is carefully prepared, and, after the ordinary operative technique, the cavity is wiped out with sterilized gauze. As a rule, irrigation is not necessary; if it seem necessary, a sterile 0.6-per-cent. salt solution is used. The wound is then packed fully with sterilized gauze, but not tightly. The further dressing is of sterilized absorbent material.

At the next dressing the skin about the wound is washed with ether or benzin and the granulating wound dressed with sterilized gauze without irrigation. In most cases a dry dressing is sufficient; in some, however, a moist dressing does better; the moistening should be done with salt solution. The author has not seen decomposition in the wound-secretion in a dressing that remained on for eight days. Free drainage with plenty of sterile absorbent dressing is all that is requisite. The course of the healing is very good. The amount of secretion is small. The dressing is removed every eighth day.

Finally, Schimmelbusch (just quoted), Braatz, and Jaffe [80 June 15,'95] characterize even irrigation of suppurating wounds with carbolic and sublimate solutions as superfluous and even hurtful. They hold that not only in aseptic, but even in infected, wounds antisepsis must yield to asepsis.

Henle [226 V.49,No.4; 80 July 15,'95] has written a timely and important paper on the disinfection of recent wounds. To offset the experiments of Schimmelbusch and his followers he took up the laboratory study of streptococcous infection. The germs were obtained from erysipelas and phlegmons occurring in the human being and were inoculated into the ears of guinea-pigs. In some cases they were rendered excessively virulent by being grown in a succession of guinea-pigs, the spleen-pulp of one animal dead of streptococcous infection being inoculated into another animal, and the re-enforce-

ment so continued. The results show, almost without exception, that the application of bichloride solutions prevented the development of erysipelas. The ear which was not treated, but simply cleansed with water, after thirty or forty hours became swollen, red, and infiltrated, presenting all the symptoms of a local erysipelas. Microscopical section showed wide diffusion of the germs. The disinfected ear remained normal without reaction, saving that which comes from the healing of a clean wound. Microscopical section showed complete absence of germs. Beginning with disinfection carried out a few minutes after the infliction of the wound and lengthening the intervals, Henle found that if bichloride is carefully employed three hours after infection, even though the most virulent form of streptococci have been inoculated, the wound remains reactionless. In some cases, when cleansing was not attempted for eight hours, erysipelas did not develop, or, if it did, was milder and slower in its course.

The microscopical sections showed that for the first four hours the germs remained strictly localized; after this they began to penetrate into the lymph-spaces, and were found at some distance from the surface of the wound, hence beyond the action of even powerful disinfectants. As to the clinical application of these facts, it is clear that the value of the antiseptic treatment of recent wounds is thoroughly corroborated by laboratory research, and to be effective the antiseptic must be applied as soon as possible after the infliction of the wound, and must penetrate to its deepest part; that there should be no hesitation in enlarging wounds when necessary to allow of thorough application of the disinfectant to all its portions; that crushed, bruised, and ragged portions of tissues should be removed by the knife or scissors, as representing tissues of such low vitality that they offer no resistance, but rather a favorable food for the multiplication of germs. But even if the wound is two or three hours old, the surgeon may fairly hope, by thorough application of his antiseptics, to avoid suppuration.

[An editorial writer $\frac{80}{\text{June 15,'95}}$ voices the view taken by American and English surgeons when he states that, while the proof above detailed as to the uselessness of antiseptics in the treatment of suppurating wounds is partly clinical and partly experimental, the clinical portion rests only on the assertion of very few observers, and these apparently prejudiced against antiseptic methods; hence it is not entitled to great weight. The weakness of laboratory proof has long since been shown. It will take evidence far more clear than this to convince the practical surgeon that the mild antiseptic lotions and dressings which he employs in the treatment

of suppurating wounds, even though they cannot bring about complete sterilization, do not serve a useful purpose in preventing decomposition of discharges, in lessening the number and virulence of germs, and, in certain cases, in rendering inert toxic substances which would otherwise be absorbed and produce systemic disturbances. Whatever may be the state of affairs in Germany, it is safe to say that in the United States the majority of general surgeons, even in the case of previously healthy surfaces, have given aseptic surgery a trial and have abandoned it. The controversy, however, promises to be a long one.]

Antiseptics.

Acetanilid.—There is no more widely felt want in the surgical armamentarium than the desire to replace iodoform with a dressing that shall give as good results and yet be free from odor. In the search for such an agent the result has been, so far, decidedly in favor of acetanilid, which is, fortunately, a comparatively cheap drug, and so bulky that a little of it by weight may be spread over a considerable surface. The merits of acetanilid as a surgical dressing were studied by Thomas S. K. Morton, of Philadelphia, $\frac{119}{\text{Feb.16,'95}}$ in upward of a thousand cases. When applied to a granulating surface in full strength it produces extreme dryness, a blue color, and the complete stoppage of the formation of pus. With this may come a sensation of warmth of the part, followed by a considerable degree of anæsthesia. The powder combines with the wound-secretions to form an artificial scab, under which, in favorable cases, healing progresses rapidly. Acetanilid may also be used in the form of solutions, ointments, or gauze, being soluble in five volumes of alcohol, twenty of ether, and two hundred of water.

It is also soluble in liquid petroleum to the extent of 40 grains (2.60 grammes) to the ounce (31 grammes), and this is a good way to use it where constitutional effects are also desired. The gauze may be made according to the formula for making 10-per-cent. iodoform gauze, but is effective as a packing for wounds in much weaker form. For injection into the urethra, into sinuses, pus-cavities, and other situations a good plan is to make an alcoholic solution and precipitate the drug from it by adding water, which causes fine crystals to be precipitated. A few cases of poisoning have been recorded, but they followed the use of large quantities of the acetanilid upon extensive raw surfaces.

In one case where Morton spread 2 drachms (8 grammes) of the powder over a large burn, and another where he packed an excised hip in a child with 10-per-cent. acetanilid gauze, the symptoms produced were the same as those that follow the

ingestion of an overdose,—namely, blueness of the skin; small, slow pulse; cold, clammy skin; rapid, shallow respirations,—in fact, the ordinary symptoms of collapse. Although the poisonous cases caused considerable alarm, none of them were fatal. It is probable that as much as 1 drachm (4 grammes) of the drug could be applied to a raw surface without danger, but the possibility of poisoning should be borne in mind and the smallest possible quantity of the powder should be used in all cases.

The antibacterial action of acetanilid is confirmed by a series of laboratory experiments conducted by Frothingham and Pratt, of New Haven. [5 Aug.,'95] The pus-producing micrococci—staphylococcus pyogenes aureus, staphylococcus pyogenes citreus, and bacillus pyocyaneus—were selected for the experiments, and in every instance the inhibitory influence of acetanilid on the growth of the micro-organisms was decidedly more marked than that of iodoform. A curious fact observed in the experiments was that in the tubes containing 1 per cent. of acetanilid the inhibitory influence was more noticeable than in those containing 5 per cent. and 10 per cent. of the drug. Another series of experiments demonstrated that as a germicide acetanilid was far less active than as an antiseptic.

Airol.—This substance is described by F. Ludy, [108 July,'95; 121 July,'95] of Basel, as bismuth oxyiodogallate, or oxyiodide of bismuth subgallate. It is a grayish-green, voluminous, odorless, tasteless powder. On exposure to damp air it gradually changes to a red powder, consisting of a more basic bismuth oxyiodide containing less iodine than airol. It slightly reddens moistened litmus-paper. In the ordinary solvents airol is insoluble, but it dissolves in alkalies and diluted mineral acids. It gradually decomposes in a large quantity of water, and more rapidly on being shaken with hot water. With a little water and glycerin airol forms an emulsion which retains its color for a long time. With vaselin and anhydrous lard it is said to yield stable ointments, and when mixed with cacao-butter it retains its original color. Clinically, airol was first employed by R. and W. Howald, who used it with good results as a dusting-powder in surgical wounds and in crural ulcers, as a substitute for iodoform. It covers the surface of a wound and penetrates the recesses, it dries up a surface rapidly without irritation, and promotes granulation. It has also been used as 10-per-cent. emulsion (with water and glycerin). The formula is:—

$$C_6H_6\begin{cases}OH\\OH\\OH\\COOBi\begin{cases}OH\\I\end{cases}\end{cases}$$

According to Fahm, [214 Apr.15,'95] it is a siccative of the first order, giving up its iodine readily and without the disagreeable odor of iodoform. He has used it for more than a year in numerous cases without observing any untoward symptoms. Veiel, of Canstatt, [113 Dec.1,'95] has also had satisfactory results from its use in ulcers of the leg. Haegler [214 No.13,'95] found that it had no toxic action, and that its action was equal to that of iodoform.

Alcohol.—Reinicke [95 B.49,H.3; 1170 Oct.,'95] believes that alcohol deserves to take a front rank among disinfecting agents to be used in sterilizing the hands; although not carrying with it absolute certainty of success, it is, he thinks, equal to ordinary disinfectants, besides having the advantage that it is harmless, is easily obtained everywhere at all times, and is comparatively cheap. Similar views are expressed by Gilbert [2000 '95] as regards its value in country-practice.

Asbestos.—E. O. Kane, of Kane, Penna., [61 Dec.7,'95] recommends asbestos materials, such as are commonly used in the arts, as admirably fitted to serve as surgical dressings. Their softness to the touch and glistening silkiness of appearance commends them as being unirritating to the skin and soft and cleanly as a covering. He holds that on account of their indestructibility when subjected to high temperature they are the only materials which, as dressings, can be rendered absolutely aseptic, while, at the same time, the variety of forms in which they can be manufactured enables them to fill all the requirements for which cotton fabrics are used in surgery, and with more satisfactory results.

Bismuth.—Gaucher and Balli [55 Dec.7,'95; 1 Dec.28,'95] gave an account of several cases in which they had observed poisoning as a result of the application of bismuth-subnitrate dressings. The poisoning had been manifested by the following symptoms: 1. Stomatitis and a streak on the gums analogous to that of lead poisoning. 2. Slate-colored patches resembling tattooing on the inner surface of the cheeks, on the tongue, and on the gums. To this pigmentation of the buccal cavity might be added symptoms, more or less acute, of stomatitis, with swelling of the buccal mucous membrane.

Blood-serum.—Schleict [116 Nov.,'94; 2 Dec.15,'94] advocates the occlusion of wounds, etc., with albumin products. As proved experimentally, these serve as excellent local stimulants to the nutrition and increase the circulation of leucocytes. Sterilized, dried, and pulverized serum obtained from oxen can be applied even to extensive surfaces, and will form an adherent scab. Iodoform can be added, and with these preparations a dressing can often be dispensed with after twenty-four to forty-eight hours. Naturally all hæmorrhage must first be arrested.

Bromine.—M. O. Terry [101 Aug.,'95] directs attention to this remedy, stating that as far back as 1826 Balard, of Montpelier, found it in the bittern of sea-salt works associated as bromide of magnesium. As a germicide bromine 1 to 875 will prevent the reproduction of spores in boiled meat-infusion; 1 to 5397 will prevent development of spores; 1 to 336 will prevent the reproduction of developed bacteria; 1 to 2550 will kill bacteria; 1 to 769 will prevent the reproduction of undeveloped bacteria. Terry recommends the solution, in substance, as a direct application in hospital gangrene, diphtheria, gangrene of the tongue, and other diseases of this nature. The solution should be applied in strength and frequency sufficient for the impregnation of the whole of the sloughs. To secure this end the application should be made by the surgeon himself, and never be trusted to a nurse.

Carbolic Acid.—Cerné, of Rouen, [203 Oct.15,'94] attributes the gangrene sometimes observed after the use of carbolic-acid dressings to the condition of the tissues, and warns against its use in extremities rendered anæmic by compression or contusion or in those in which the tissues have undergone a change from a general diathesis, as diabetes or albuminuria, or from some local influence, as atheroma or neuritis.

Laugier [55 Jan.12,'95] reports three cases in which gangrene of a digit was caused by prolonged contact with a carbolic dressing. One of the patients made use of a 1-per-cent. solution of phenate of sodium; the other two employed carbolic-acid solution of the strength of 1 in 50. None of the three had presented any predisposition to gangrene. It is therefore evident that prolonged contact with a dressing saturated with a 2-per-cent., or even 1-per-cent., carbolic solution may give rise to a caustic action so strong as to result in a partial or total gangrene of the part. This may occur at any age, in either sex, and apart altogether from albuminuria, diabetes, alcoholism, or endarteritis. The writer remarks that these facts ought to be known by pharmacists as well as by medical men, and he would recommend druggists never to dispense carbolic solutions of a greater strength than 1 in 1000 or 2000, unless by a prescription.

Lucas and Lane [6 June 1,'95] report two cases of carbolic-acid poisoning induced by the application of compresses saturated with 5-per-cent. carbolic-acid solution as a preparation for operation. These cases are alike interesting because of the manner of the introduction into the system of the carbolic acid, and because of the clinical symptoms of the poisoning,—severe collapse with low temperature; very rapid, weak pulse; vomiting; profuse perspiration; coma, lasting in one case four hours, in the other eight hours; in

both cases stertorous breathing, absence of the corneal reflex, though the pupillary light-reaction remained present; occasional spasm of the eyelids and faint tonic contractions of the hands and arms; transitory anuria. Vomiting and "carbolic-acid urine" persisted for three days, the patients ultimately recovering.

Launay [733 Mar.1,'95; 2 Mar.23] relates a case of frost-bite in which carbolic dressings caused gangrene, to show that this may result, as he believes, even when a weak solution of carbolic acid is used. A physician had recommended a carbolic foot-bath, and three baths of three-quarters of an hour were taken each day, a solution of about 3 per cent. being used. In the interval between the baths the patient kept a wet dressing of the same solution wrapped around the fourth toe, the one most affected. After three or four days of this treatment the fourth toe began to show signs of dry gangrene, but the patient persisted for some days in continuing the treatment without consulting the physician. He was then found to have a dry gangrene of the whole of the right fourth toe, which Launay considers to have been determined by the carbolic acid. He points out that the solution used was made without any alcohol or glycerin, that under these circumstances the carbolic acid may not have been completely dissolved, and undissolved crystals may have come into direct contact with the skin.

Hubbard W. Mitchell, [59 Dec.7,'95] in a paper on the result of experiments with halogen salts, stated that, taken in nearly equal proportions and mixed by the chemist, there seemed to be a re-arrangement of the atoms of the salts in the solution, and the resultant was a straw-colored fluid, acid reaction, specific gravity of about 1.023, strong odor of chlorine, and slightly acid taste. About two years ago a chemist, a friend of his, brought him the fluid, which he said was good for almost anything, and among the things which he named specially were ulcerative and suppurative processes and gonorrhœal and syphilitic lesions. He then, through the courtesy of Taylor, selected about thirty-five cases of lesions of syphilis, in various stages, and of chancroid. In all cases, whether of phagedænic bubo, indurated chancre, or other sore, the results were extremely satisfactory, the lesions healing without difficulty in a short time. In two or three cases of extensive epithelioma of the face, extending down to the bone, the ulcerative process was arrested. C. J. MacGuire, who had helped carry out the treatment in some of the cases of epitheliomatous ulcers of the face, states that in one case the fluid had the effect, in two months, of reducing the ulcer from a diameter of six inches to an inch and a half. The patient then left the hospital.

Flaxseed-meal.—R. W. Lovett, of Boston, [99 Apr.4,'95] has experi-

mented with flaxseed-meal poultice as a sterile dressing, and claims that his experiments show plainly that, although apparently by chance, the flaxseed-meal poultice may be perfectly sterile, yet, in the majority of cases, it is not so. Nor can it be rendered sterile by the most scrupulous care in its preparation. Experiments made in heating the meal for ten minutes or more reduced it to such a gelatinous mass that it was not suitable for surgical use. The organisms found were in most cases probably non-pathogenic and micrococci were not often present. The place where the poultice was prepared seemed to have little effect on its character.

Iodine.—Of all the antiseptics, the halogens are certainly those which act in the smallest dose. Their action is immediate. If the dilution used is too weak to kill the micro-organisms immediately, their vitality, according to Meillère, $\frac{164}{\text{Dec.26,'94}}$ is diminished, and, if they continue to proliferate, it is as saprophytes or, at least, as microbes of greatly attenuated virulence. The toxins are also as certainly affected as the bacteria themselves. A litre of spring-water may be sterilized in a few minutes by four drops of tincture of iodine; even less will cause the annihilation of pathogenic microbes.

Iodoform.—Stchegoleff $\frac{457}{\text{Nov.,'94}}$; $\frac{6}{\text{Dec.1}}$ has recently re-investigated the question of iodoform as an antiseptic in the laboratory of Strauss, of Paris. He found that beef-peptone-gelatin bouillon, which is an excellent culture-medium for Koch's tubercle bacillus, loses that property when it has incorporated with it 5-per-cent. of iodoform, the tubercle bacilli sown in it dying in forty-eight hours. When an emulsion of virulent culture of tubercle bacillus and 10 per cent. of iodoform was employed to inoculate guinea-pigs, the animals survived longer than those that had received non-iodoformed inoculations. Thus iodoform kills the bacilli in the cultures, but only attenuates their virulence when introduced into the system at the same time as the tubercle bacillus. The action of iodoform on the staphylococcus is just the reverse of what it is in the tubercle bacillus, for that micro-organism (the staphylococcus) flourishes in an iodoformed culture-medium, while the inoculation of the staphylococcus previously submitted to the action of the drug is inoffensive. From $1\frac{1}{2}$ to 2 cubic centimetres (24 to 30 minims) of iodoformed culture could be injected with impunity, only a trifling local reaction being produced, whereas other animals inoculated with the staphylococcus grown in ordinary media were affected with abscesses or died in a few days from septicæmia. When, however, the iodoform is mixed with the staphylococcus at the moment of inoculation, a small local abscess results, showing

that there is only attenuation, and not suppression, of the virulence. Stchegoleff thought that, perhaps, the iodoform, while not attacking directly the staphylococcus, acts, nevertheless, on the toxin secreted by the microbe. To determine this point he prepared two kinds of culture,—one normal and one mixed with 10 per cent. of iodoform. A week later he filtered them, in order to deprive them of living organisms, and the animals inoculated with non-iodoformed toxins died in a few hours, whereas those inoculated with the iodoformed toxins remained well. Stchegoleff opines that, under the influence of iodoform, the toxins of the staphylococcus are converted into non-poisonous iodized compounds. We can now understand how iodoform, applied to a sore, prevents suppuration and infection without killing the pyogenic organisms. Löffler's diphtheria bacillus is affected by iodoform in much the same way as the staphylococcus. It grows well in an iodoform culture-medium, but its virulence is diminished. The diphtheria toxins are weakened and even altogether neutralized by iodoform, provided the drug is present in adequate proportion and for a sufficient length of time.

Ceccherelli $^{589}_{\text{Oct.19,'96}}$ draws attention to a method of treating granulating wounds which he has tried with success for the last six years. The method consists in dusting the surface with an equal mixture of iodoform and tannic acid. He finds that tuberculous ulcers, granulating wounds, etc., heal better under this treatment than under a simple iodoform dressing.

Kowteschweiler $^{575}_{\text{No.47,'95}}$ advises the use of an alcoholic solution of hexamethylentetramine for washing the hands, carefully drying them afterward. An inodorous combination of iodoform is thus formed.

Iodoformin.—Eichengrün $^{116}_{\text{Sept.,'95}}$ has experimented with iodoformin,—an odorless white powder, insoluble in the usual vehicles, which becomes iodoform on contact with acid or alkaline fluids. This change goes on *pari passu* with the healing process. It causes no irritation, and its activity continues for a longer period than does iodoform. The yellow color remains longer in the wound.

Izal.—Sheridan Delépine $^{90}_{\text{Sept.,'95}}$ is of the opinion that izal is undoubtedly one of the newer antiseptics and disinfectants deserving very special attention. Observations made by Klein nearly three years since have shown it to be capable of killing a large number of micro-organisms associated with various diseases, and this it could do even when sufficiently diluted as to cause no detrimental irritation of tissues. Among the most remarkable features of this compound are its comparative insolubility and non-

volatility at the ordinary temperature,—properties which it seems difficult to associate with an active disinfectant, but which numerous experiments have proved not to be incompatible in this case.

The author avoided conducting his experiments on the same lines as those explained in Klein's report. He arrived at the conclusions that izal mixed with 10 parts of water will disinfect, in forty-five minutes, dried tuberculous sputum or other tuberculous matter, and that fresh tuberculous products of great virulence, when mixed with an equal quantity of izal of the same strength as above and allowed to dry at the ordinary temperature for twelve hours, are also completely disinfected; that izal diluted with 200 parts of water is a safe germicide for micro-organisms as resistant or less resistant than the bacillus coli communis; that it seems evident that izal diluted with 100 parts of water is a reliable antiseptic for the dressing of surgical wounds, made with the usual antiseptic or aseptic precautions, and that izal diluted with 100 or even 200 parts of water is a powerful and reliable antiseptic when contact of a sufficient length of time is secured. As an antiseptic it is more powerful than carbolic acid, and, if it be remembered that it causes very little irritation of living tissues, that in moderate doses it is not poisonous, and that, practically speaking, it is not volatile, there can be little doubt as to the immense advantages which izal possesses over carbolic acid in many directions.

Loretin.—According to Herbert Snow $_{\text{Dec.21,'95}}^{2}$ loretin is an organic iodine compound discovered by Claus, of Freiburg. It is a bright-yellow, odorless, crystalline powder, very slightly soluble in water and alcohol; cold water takes up 1 to 2 parts per 1000, boiling water 5 to 6; it is insoluble in ether and oils, forms emulsions with the latter and with collodion.

Ammelburg's bacteriological investigations proved loretin to be a powerful microbicide much superior to iodoform, with which comparison more particularly holds weight. They deal with the micro-organisms of cholera, anthrax, suppuration, typhus, etc. Some of the more significant are appended; the experiments are being still continued.

Schinsinger has extensively used loretin for burns and operations of all kinds, including empyema, herniotomy, resection of the upper jaw, arthrotomies, carious and tuberculous processes, etc.; in six months he had not a single instance of toxic symptoms, much less of death.

Loretin is recommended for use as a dusting-powder, either alone or mixed with calcined magnesia, starch, or French chalk; as collodion (2 to 10 per cent.); in pencils of cacao-butter (5 to 10

per cent.); in ointment, 5 to 10 per cent. with vaselin or lanolin; in solution of 0.1 to 0.2 per cent. of the free acid or 1 to 2 per cent. of the soluble sodium salts; lastly, as gauze impregnated with precipitated calcium salt.

Trnka [6 July 20,'95] recommends this substitute for iodoform, as it causes but trifling granulation, limits secretion, and is also cheaper than iodoform. A compound of equal parts of loretin and calcined magnesia is well adapted for favoring primary healing of wounds; a solution of 5 parts of loretin with 2 parts of tragacanth and glycerin in 100 parts of water possesses the same quality as collodion of depositing a filmy coating.

Mercury.—Burcker [243 Apr.,'95; 80 June] finds, as a result of experimentation, that ordinary water causes an immediate decomposition of bichloride of mercury; that this decomposition steadily continues under the influence of air and light. This decomposition ceases or becomes arrested when air and light are excluded. Solutions of bichloride of mercury made in distilled water undergo only trifling decompositions, even when exposed to air and light.

Guillot [243 Apr.,'95; 80 June] examined the emergency packets made for the army. Each of these contained sterile gauze impregnated with bichloride of mercury $\frac{1}{10}$ of 1 per cent. by weight. He found that a reduction took place, the mercury being transformed to insoluble salt; so that in eighteen months no bichloride of mercury could be found.

C. Monod and Macaigne [73 Oct.26,'95; 2 Dec.28] state that oxycyanide of mercury in 5 per 1000 solution displays in laboratory experiments an antiseptic potency always equal to and often greater than that of 1 to 1000 sublimate solution. It has no disadvantages other than those possessed by corrosive sublimate, and it has the special advantage of not affecting either the hands or the instruments of the surgeon. It may therefore replace sublimate in surgical practice.

Jose Ramos, of Mexico, [74 Apr.,'95] highly recommends the cyanide of mercery as an antiseptic for use by oculists; it is sufficiently powerful, non-irritating, and does not injure the edge of the cutting instruments.

Mustard.—Roswell Park, of Buffalo, [9 Nov.16,'95] has called attention to the remarkably efficient properties possessed by mustard as an antiseptic or sterilizing agent for the surgeon's hands and for the skin of the parts to be operated upon. His custom is to scrub his hands thoroughly with a mixture of green or other soap, cornmeal, and mustard-flour, using this for about five minutes. After rubbing it thoroughly into all the crevices and creases of the hands and nails by aid of a nail-brush, one may be absolutely

certain that his hands are sterilized, no matter what he may have been doing previously. He adds that mustard is an admirable deodorizing agent, and will take away from the hands all offensive odor of dead or dying tissues, all redolence of iodoform, etc.

Nosophen.—Zuntz and Frank $\frac{53}{\text{July 1,'95}}$ undertook a series of experiments on rabbits to test the relative efficacy of various iodine preparations—viz., nosophen, iodoform, dermatol, and aristol—in the treatment of wounds. They found nosophen to be superior to all, causing more marked desiccation of the wounds, with complete absence of exudate, tumefaction, or redness of the edges, and rapid diminution and cure of the wound. Under the microscope it was seen that wounds treated by nosophen were invaded by a smaller number of leucocytes than those treated by other iodine preparations. Wounds infected by the bacillus prodigiosus and treated by antinosin (sodic nosophen) healed rapidly, while similar control wounds remained covered with a dirty deposit.

Von Noorden $\frac{34}{\text{No. 22,'95}}$ has replaced iodoform gauze by nosophen gauze in his surgical work. He tried the latter first in minor surgery, and, finding it satisfactory, used it in dressing large surfaces and wound-cavities, after extirpation of glands, resection of the rectum, operations on the breasts, and congenital dislocation of the hip with formation of a new cotyloid cavity. According to this author, nosophen gauze is not inferior to iodoform gauze in drainage and in hastening granulation, and it may be entirely substituted for it in tamponading. One great advantage is the complete absence of odor, and another is that it gives rise to no secondary symptoms.

Oxygen.—George Stoker, of London, $\frac{2}{\text{Dec. 1,'94}}$ brings to the notice of the profession a new method devised by him for the treatment of wounds. It consists in the continuous exposure of the injured part to the action of gases and medicated vapors; of these, oxygen is the most important. The wounded part is inclosed in a receptacle through which is passed a current of the gas or vapor employed. The receptacle is an air-tight wooden box, the upper part of which is glass, and which, at the extremity where the limb enters, is closed by an India-rubber funnel fitting to the limb and kept *in situ* by a turn of a Martin bandage. To this box are connected three India-rubber tubes about three-sixteenths inch in diameter. Through the first the attendant, at stated intervals, pumps in warm air by a plan closely resembling that used in a Higginson syringe, the warm air, however, passing through two bottles, one containing Condy's fluid and the other lime-water, while in a glass portion of the tube itself it traverses menthol and medicated wool. Through the second tube the

oxygen is carried in. The third tube is utilized to carry off any impure air into a bottle of Condy's fluid. The treatment is commenced by pumping in the warm air for about three minutes; this is done first, as it is found that the pure oxygen is too stimulating. Next the oxygen is turned on, and this is continued at a very low pressure, and not even shut off when the warm air is pumped in again at intervals of a quarter of an hour; pain, which is increased by dryness, is relieved by this method. The ulcerating surface is dressed twice a day with dilute, warm, boric solution, with which it is gently syringed and the scabs removed, the box, of course, being taken away during the dressing. The treatment necessitates the constant attention of a nurse, who has, to a certain extent, to be specially trained. The cost is about one farthing per hour, but this probably, Stoker asserts, could be considerably reduced. In a case described the ulceration, which was probably specific, half-encircled the right leg of a middle-aged woman, rather stout, and suffering, in addition, from chronic eczema and heart disease; the ulceration had been treated for a considerable period in the ordinary manner, but without success. Under the new treatment the ulcerating surface looked clean, the granulations were healthy, and the patient was at once relieved of the pain from which she had been suffering; the gases caused a prickling sensation when first turned on, but this disappeared in the course of half an hour. The pus was found to be speedily freed from organisms, and the new skin formed was not cicatricial.

A second case of Stoker's $^{6}_{\text{Mar.30,'95}}$ was that of a man who suffered from extensive and intractable ulceration of the hand, following a poisoned wound of the finger. The rapidity of the healing under a similar atmosphere was remarkable; the nails grew so quickly that they had to be cut every day, and there was an exuberant growth of hair on the back of the hand. By the seventh day the wound was completely aseptic. Richard Neal, of London, $^{2}_{\text{Dec.15,'94}}$ calls attention to the fact that Stoker's idea is far from novel, and that he himself has previously $^{2100}_{\text{Secs.224,160,161,175}}$ referred to various gaseous agents which from time to time have found able advocates in the treatment of wounds.

Stoker, $^{22}_{\text{Jan.9,'95}}$ however, states that he has examined his reference and cannot find there or elsewhere allusion to any such method as he has devised.

Parachlorphenol.—Girard, of Berne, $^{673}_{\text{Sept.,'95}}$ praises the antiseptic properties of this drug, considering it more stable, more energetic, and more constant in action than other agents. Its toxicity is much less than that of the soluble salts of mercury, cresol, and phenol. Subcutaneous injections of 1 gramme (15½ minims) per

kilogramme of body-weight are required to form a toxic dose for the dog and rabbit, while 0.50 gramme (7¾ minims) of cresol and 0.30 gramme (4½ minims) of phenol produce toxic effects. As regards its antiseptic power, a 2-per-cent. solution kills the spore of anthrax in one hour, whereas a 5-per-cent. solution of cresol kills them only in from four to seven days, and a 5-per-cent. solution of phenol at the end of twenty days. From a practical point of view parachlorphenol has incontestable advantages, dressings impregnated with it retaining their antiseptic properties much longer than sublimate. In infected wounds, as well as in phlegmons, its effects are more rapidly manifested than when sublimate or phenol is employed, though ulcers and wounds of tuberculous origin are not so favorably influenced by it. No appreciable benefit could be observed from its use in synovial disease or tuberculous affections of the joints. It is valuable for the disinfection of instruments, not attacking them any more than does a 5-per-cent. solution of phenol.

Sawdust.—Neve $^{6}_{\text{Apr.27,'95}}$ calls attention to the fact that the French war department has adopted peat as the best cheap absorbent dressing. Peat-moss appears to have been used successfully in Russia for the last ten years. Suggested by Leisrink, it was soon used by Schede, Hagedorn, and others. Neve tried it for a time, but soon returned to sawdust pads, which have now been the staple dressing-material for over ten years at the Kashmir Mission Hospital, India. The muslin bags and sawdust are very low-priced. The pads are impregnated the day before use with a 1 in 2000 solution of mercuric zinc cyanide. They can be easily sterilized in a Cathcart or Schimmelbusch oven. They are absorbent, but not too drying. Surgeons who have used moss have found it too drying, as the discharges crust beneath it and the moss needs dampening from time to time. Sawdust pads will absorb twice their own weight of pus or serous discharge. Absorbent wool frequently allows a small amount of discharge to penetrate to the bandages. This seldom happens with well-adjusted pads. They are exceedingly light and comfortable, and, if well made, adapt themselves to the shape of any surface. The sawdust should not be too fine nor the muslin too coarse.

Sodium Bicarbonate.—Keen, of Philadelphia, $^{144}_{\text{Nov.,'94}}$ also recommends boiling of instruments, adding 1-per-cent. of common baking-soda to the water to prevent rusting.

O. Ihle, of Dresden, $^{226}_{\text{B.48,H.4}}$; $^{5}_{\text{June,'95}}$ advises the boiling of knives, which, he thinks, has been too largely abandoned on account of their becoming dull. This, he claims, is frequently due to contact with other instruments or with the vessel. Ihle states that even

prolonged boiling in soda solution does not destroy the edge. The soda solution must be at least of 1 per cent. The edge of the knives should be protected while boiling. The proper proportion of soda will be obtained by adding one tablespoonful of powdered soda or three tablespoonfuls of the crystals to a litre (quart) of water.

Sponges.—G. Meillère [164 Mar.20,'95] recommends the preparation of sponges with permanganate of potassium, and their preservation afterward in hermetically-sealed jars containing either a 5-per-cent. solution of carbolic acid, or a 1 to 1000 solution of corrosive sublimate, or a 1 to 300 solution of thymol. The sponges should always be examined bacteriologically before using. Sponges, according to Keen, of Philadelphia, [144 Nov.,'94] will become corroded if kept permanently in a bichloride solution. J. C. Reeve, Jr., [1 Jan.11,'96] states that the value of the gauze sponge is not in its cleanliness nor in its cheapness, but in the fact that it permits the discarding of all fluid from the operating table and stands.

Straw-ashes.—Kikusi, of Tokyo, [1202 Oct.1,'95] calls attention to straw-ashes as an advantageous substance for surgical dressings in time of war, being always available by simply burning straw in the open air. If used soon after burning, the ashes meet all the requirements of asepsis and can be kept a considerable time in tin boxes. The best method of application is in bags of muslin. Fischer, who tried the substance in the clinic at Tübingen, regards it as a most advantageous surgical dressing.

Sulphur.—W. Arbuthnot Lane [6 Dec.1,'94] summarizes his experience with sulphur in surgery, and comes to the following conclusions: 1. Neither sulphur nor the products generated by its decomposition acted prejudicially upon the life or health of the individual into whose body it was introduced. 2. If placed in contact with recently incised healthy tissues, twenty-four hours sufficed to render the parts sterile as far as organisms are concerned. 3. If the recently incised or scraped surface were but poorly supplied with blood,—as, for example, the brawny edge of a carbuncle or a spreading gangrene of a limb,—sulphur might be left in contact with the tissues advantageously for a considerably longer period. This also applied to a granulating surface. 4. The entry of other organisms into a tuberculous cavity did not influence the action of the drug, since it destroyed all organisms, whether free in the cavity or intruding into the surrounding living tissues forming its wall.

Water.—Paul Réclus, [22 Nov.27,'95] in a clinical lecture on the systematic employment of hot water in surgery, stated that he had recommended its application as a surgical dressing for the last ten

years, and he was glad to say now that he had many followers. Hot water has been proved by Koch to increase the power of antiseptics, and for this reason Réclus preceded his operations by thoroughly washing the parts with this simple agent. It was not necessary for him to allude to the action of hot water on ulcers, superficial inflammations, lymphangitis, phlebitis, boils, and anthrax, for every one knew what relief was obtained from it in sprain, crushed limbs, hæmorrhoids, prostatitis, and inflammations of the internal female genital organs.

F. Terrier, of Paris, [91 Dec.10,'94] believes sterilization of dressings with steam to be good practice and to furnish excellent results. The dressings should be dried in Sorel's drying apparatus, which is easily managed. Terrier does not approve of Wiesnegg's apparatus, nor of Geneste and Herscher's, as they do not assure absolute disinfection, while the dressings retain a degree of humidity.

In the course of some experiments on rabbits G. Steinmetz [301 p.189,'95] remarked that the wet heat given out by moist dressings exercised an unfavorable influence on the course of infected wounds. From this fact he advises dry dressings after evacuation of the pus and cleansing of the cavity. It is certain that, when a dry dressing can be applied to all the parts, it is preferable to a wet one; but when the inflammation is diffuse, when there is lymphangitis, moist dressings have their place.

Hæmostasis.

Medicinal Hæmostatics.—The hæmostatic effect of antipyrin has been noticed by Huchard, Henocque, and Olikoff, though some other observers have not been able to confirm their statements. A remarkable instance of its power of rapidly coagulating blood in a very critical case has recently been published by Braussolle, of Dijon. [6 June 8,'95] After rapidly clearing away the clots from the skin 1 drachm (4 grammes) of antipyrin was sprinkled on the wound and a pad of absorbent cotton-wool applied with a bandage. The effect of the antipyrin was first to form a clot, which caused the hæmorrhage to diminish and ultimately to stop. It did not return, though the patient lived for forty-eight hours and died from pulmonary complications of long standing. The pad was found to be scarcely stained, and the size of the aneurismal tumor had decreased to a marked extent.

Roswell Park, of Buffalo, [9 Dec.15,'94] has found a 4-per-cent. solution of antipyrin useful as an hæmostatic in checking general oozing from a bleeding surface, and also claims for it antiseptic properties which compare favorably with most of the aniline and coal-tar derivatives.

Hederich, of Heidelberg, [116 Jan.6,'95] recommends a new hæmostatic called ferripyrin. This substance is a definite combination of iron perchloride and antipyrin under the form of a reddish-colored powder which is easily soluble in cold water. It has several appreciable advantages over iron perchloride, and has neither its caustic qualities nor its bad taste; its hæmostatic properties are, moreover, superior to those of the perchloride. Dermatol is recommended by Hecht, of Beuthen, [116 June,'95] as being an excellent hæmostatic. Turpentine is advised by J. Sasse, of Zaandam, Holland, [116 Feb.,'95] and H. Nægli-Akerblom, of Rüthi. [116 Mar.,'95]

Mechanical Hæmostatics—Esmarch's Hæmostatic Bandage.—John H. Brinton, of Philadelphia, [1 May 11,'95] mentioned some objections to, or dangers from, the use of Esmarch's bandage as a constricting and controlling band. He has used the elastic bandage for many years, and had several cases in which the results were not altogether satisfactory. In one case the constricting band had deeply divided the muscular tissues, posteriorly, almost to the bone. The large vessels and nerves were not injured. This damage resulted not from the direct constricting forces or pressure, but from the tearing of the tissues, firmly fixed above, by the extension of the leg during the operation. He was much annoyed by the accident and dreaded the results. The patient, however, made a very good recovery. He had also made use of the Esmarch bandage in amputation at the knee-joint, in two cases, and found a troublesome hæmorrhage coming on about six hours afterward. It was not in either case a free hæmorrhage, but rather a persistent oozing from tissues which did not bleed at the time of operation. He was obliged to open the stump and apply eight or ten ligatures to arrest the hæmorrhage. In the discussion H. R. Wharton stated that there was always more hæmorrhage after applying the elastic bandage, followed by the elastic strap, than by simply applying the strap, and thought that there was likelihood that the band might be applied too tightly in many instances. The secret is in applying it with just sufficient force to do no damage and simply to temporarily control the circulation.

Frey [336 No.38,'94] also advises against too violent use of the bandage, on account of three similar cases, in Wölfler's clinic, of paralysis of the upper extremity after the application of the Esmarch bandage, and concludes that the paralysis results from a direct mechanical injury to the nerve-trunks through the pressure induced.

In tying arteries an important point to consider is, according to J. A. Wyeth, of New York, [59 Dec.22,'94] the selection of a ligature. It seems to him that in the animal ligatures, and especially in well-prepared and properly-asepticized catgut, is found the best ligature

material. For the last ten years he has used catgut almost without exception, only once or twice using silk, and then in the ligation of the large venous trunk close to the root of the neck, in which he was fearful that the animal ligature might slip from the blood-pressure in the act of vomiting as the patients came out from under the influence of the anæsthetic. Porta, in 400 experiments, found that in from one to two years 70 per cent. of catgut ligature had become absorbed, 36 per cent. of silk, 66 per cent. of hemp and flax, and 20 per cent. of horse-hair.

John F. Erdmann, of New York, $\frac{59}{\text{June 29,'95}}$ strongly advocates the use of torsion in checking hæmorrhages from divided vessels. He believes that by its use we dispose of the ligatures, which act as foreign bodies, and which are very likely to be a source of irritation and also a possible means of infection; the hæmorrhage, due to an imperfectly tied knot or slipping of the knot due to the condition of the ligature, is also prevented. Primary union is more apt to follow by this method, and secondary hæmorrhages naturally will occur with less frequency; as a result of torsion on vessels, the inner and middle coats rupture and an incurvation takes place in the opposite direction of the blood-current and favors the coagulation of the blood, whereas in ligation there is no incurvation, but the inner and middle coats rupture and invert slightly and resemble a V-shaped mass. The author has used torsion in 105 operations, including 31 radical cures for hernia, 2 explorations of the cranial cavity, 8 abdominal sections, and 8 malignant growths of the breast with axillary dissections, etc.

Suture of Veins.—The experimental work of P. Tikhoff $\frac{852}{\text{p.916,'94}}$ on the suture of large veins is one of great interest. The question has before been studied experimentally by Mayr on the cadaver and by von Horoch on animals. Mayr found that suture of large venous trunks (axillary, femoral) which had previously been cut sufficiently re-established the continuity of the vessels to prevent water, introduced under a certain pressure, from passing out through the sutures. Von Horoch cut the jugular or femoral vein in three dogs, and found that suture assured perfect hæmostasis without causing the slightest disturbance in the circulation, and that later the sutured portions were reunited by a linear cicatrix.

Glück $\frac{283}{\text{No.68,'95}}$; $\frac{101}{\text{Oct.}}$ has sutured the injured abdominal aorta in animals and preserved the circulation. Endothelial union occurred later and thrombi formed on the vessel-walls, which, however, failed to produce any circulatory disturbances. He therefore recommends the employment of sutures in wounds of the arterial walls. At the last German surgical congress the first case of successful arterial suture in a human being was recorded, the vessel

being the common femoral. In discussing Glück's paper J. Israel contributed a second case of arterial suture in a human being. During an operation for appendicitis the common iliac was accidentally wounded, the incision involving two-thirds of the calibre of the vessel. The profuse hæmorrhage was arrested by a compression, clamps were applied above and below, and the wound united with five fine-silk sutures. The circulation was at once restored and prompt healing ensued. It is an unfortunate fact, however, that arterial suture is impracticable in the very class of cases in which it is most desirable,—viz., arterial sclerosis, where a collateral circulation is not established.

Romme [363 Jan.26,'95] states that clinical and experimental evidence shows that Schede is justified in advocating suture in wounds of large venous trunks when these wounds are of such a size that lateral ligature is impossible.

Petit, of Paris, [14 Jan.22,'96] believes that transverse and lateral suture of the veins is possible and even easy. Lateral anastomosis of two venous trunks is readily obtainable without the formation of clots. If a bit of catgut be fixed to the wall of a vein and allowed to float in the lumen in the direction of the blood-current, it will become absorbed without leaving any trace. If a catgut ligature be placed on an artery which has not been severed, the vessel soon recovers its permeability. A vein which is submitted to the same operation, however, remains obliterated.

According to Ricard, of Paris, [1153 Nov.6,'95] total ligature, lateral ligature, the hæmostatic forceps, or a simple tampon will suffice to arrest hæmorrhage of a venous wound, as a general rule; but this hæmostasis can only be secured by complete suppression of the circulation in the calibre of the vessel,—a suppression which may lead to the loss of a limb in the case of the femoral vein or even to death in the case of the vena cava or portal vein. On the other hand, suture of the walls of the veins, applied as in wounds of the intestinal walls, insures perfect hæmostasis, while preserving the calibre of the vein and respecting the circulation. He performed such suture in two cases,—one of the right brachiocephalic trunk and one of the femoral vein. Practiced under proper aseptic precautious, it is a resource of great value.

Sutures.

Catgut.—Lauenstein, of Hamburg, [673 June,'95] has found in catgut, sold as sterilized, several kinds of bacteria, such as bacillus subtilis, staphylococcus albus, and micrococcus tetragenus. Suppuration, he was sure, often rose from the catgut sutures. In 35 cases out of 149 specimens of catgut he was able to cultivate the bac-

teria on gelatin. The greatest number of germs were observed in catgut sterilized by a dry process.

McLaren, $^{112}_{\text{June,'95}}$ in a paper read before the Philadelphia Obstetrical Society, advised the following as the best method of sterilizing catgut: The catgut is wrapped in waxed paper, sealed in envelopes, and then placed for four hours in a dry sterilizing oven at a temperature of 284° F. (140° C.). If the best of catgut be selected it will be found not to have been made too brittle by the heat.

B. L. Eastman $^{96}_{\text{v.20,p.56,'94}}$ states that catgut can be rendered sterile by heating in olive-oil at 212° F. (100° C.) for three hours. The method is cheap, reliable, and rapid. The quality of the gut is not impaired. For some reason the oil thus boiled becomes turbid, but is clear again after two or three days. The boiling is done over a water-bath. The gut is wound on a glass spool, which is placed in a bottle containing the oil. The bottle is sealed and placed in a water-bath, which is then covered. It is exposed to the temperature of the boiling water in this way for three hours. The boiling-point of the oil is stated as about 400° F. (204.5° C.).

Cunningham $^{1}_{\text{Apr.20,'95}}$ advises the following method of preparing aseptic catgut. The catgut is soaked for two days in a mixture of absolute alcohol and ether. It is then placed for several days in a mixture of equal parts of formalin, alcohol, and distilled water. After this treatment the formalin is removed from the gut by boiling it for a half-hour in a normal saline solution. It is then preserved in alcohol and is ready for use. For this method the author claims the following advantages: The gut is absolutely sterile, as formalin is an active germicide; the sutures are less quickly absorbed, since formalin unites with albumins to form fairly insoluble compounds; the catgut is not brittle and may be boiled in normal saline solution without losing its strength.

Schimmelbusch $^{69}_{\text{No.38,'94}}$ describes a method which consists in first removing the contained fat and then placing the gut in a 1-per-cent. solution of mercuric chloride in 80-per-cent. alcohol and frequently stirring. Repeated bacteriological examination has shown such catgut to be free from micro-organisms.

Schüller $^{411}_{\text{No.30,'94}}$ advises the following process for the sterilization of catgut. Take good, dry catgut in loose coils, place in a wide-mouthed glass vessel, cover with oil of lavender, and heat to a temperature of 110° C. (230° F.) for half an hour in a steam-sterilizer. The catgut may be used directly from this oil or from an antiseptic watery solution.

Saul, of Berlin, $^{14}_{\text{Jan.1,'96}}$ advises boiling catgut in a mixture of 85

parts of ethylic alcohol, 5 parts of carbolic acid, and 10 parts of water for five minutes at a temperature of 78° C. (172° F.). The addition of water is essential, as boiling in alcohol alone does not cause as complete or as rapid sterilization.

W. W. Keen, of Philadelphia, [96 Dec.,'95] recommends the method of preparing catgut in use in the Jefferson Medical College. The raw catgut is used, not that prepared by boiling or heating, as in the case with much of that furnished by instrument-makers. It is first soaked in Squibb's ether (not the common commercial ether, which has sulphuric acid in it) for from twenty-four to forty-eight hours, according to thickness, in order to remove the fat. It is then placed in a solution of

℞ Bichloride of mercury, . . .	20 grains (1.30 grammes).
Tartaric acid, ...	100 grains (6.65 grammes).
Alcohol (95 per cent.), . . .	6 ounces (186.00 grammes).

Henry O. Marcy, of Boston, [59 Nov.30,'95] expresses the opinion that aseptic wounds, with very few exceptions, should be primarily closed by buried tendon sutures and hermetically sealed with iodoform collodion. Carefully selected tendons are to be preferred for buried sutures, since primarily their anatomical construction makes them stronger, more compact, and, as a consequence, more resistant to the softening processes which must ensue when buried in the living structures. When properly preserved, they have not been subject to bacterial decomposition, and hence may be sterilized without detriment to their ultimate elements. When tendon has been chromicized, it is best preserved in a sterilized, oily fluid. Experience has shown that by far the best preserving fluid is linseed-oil, sterilized by heat, to which carbolic acid has been added. Tendon improves so much when thus kept that he rarely uses it until it has been in carbolic acid from three to six months.

Kocher [673 June,'95] states that in his operations for goitre primary union was obtained in only 35 per cent. of the cases when sterilized catgut was used, but in 85.7 per cent. when sterilized silk was used. He has now completely abandoned aseptic sutures, and only employs silk made antiseptic by an alcoholic solution of bichloride of mercury. Since adopting this method he has obtained primary union in every case.

Van Ketel [953 No.6,'94; 157 Nov.,'95] has attempted to discover why the solution of the bichloride in which suture silk is kept is so liable to develop flakes due to various micro-organisms. He has found from experiments that the silk extracts the antiseptic from the solution; even in the course of twenty-four hours it will withdraw the bichloride from a ½-per-cent. solution so that algæ will grow

luxuriantly in it. He thinks it probable that the albuminoids and similar substances in the silk enter into combinations with the sublimate. Therefore he would recommend keeping the silk in absolute alcohol and only placing it into $\frac{1}{2}$-per-cent. sublimate or 1-per-cent. sodium-chloride solution immediately before using.

Miscellaneous.—C. R. Daniels $_{\text{Mar.2,'95}}^{61}$ recommends horse-hair for surgical use. The convenience of the stable places it within every surgeon's reach; the hair needs only a thorough washing with soap and water; it is then kept two or three days in 1 to 1000 hydrarg. bichlor. solution and in 95-per-cent. alcohol until used.

Robert Craig Dun, $_{\text{Mar.,'95}}^{36}$ records the results of seventy-eight inoculation experiments on rabbits. The materials inoculated were foreign bodies, knots of silk ligature, chemical irritants, solution of mercuric chloride, and micro-organisms,—staphylococci and streptococci. As practical deductions from these experiments, the author draws the following: In the treatment of wounds as little ligature as is consistent should be employed; torsion, forcipressure, etc., should be used as much as possible. The ligature material should be absorbable, so that it may cease to be a foreign body in the shortest possible time, and it should be mildly antibacterial.

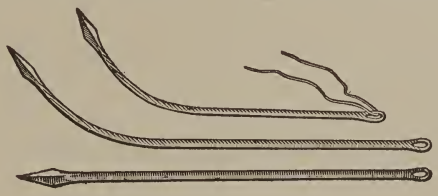
L. Couturier, of Lyons, $_{\text{Sept.,'95}}^{1043}$ describes a new knot for ligature of a vessel or pedicle having the advantage of not becoming loosened when traction is stopped, so that all the effort is utilized, and also, as long as the ends are not cut, of enabling one to retighten the knot if there is seen to be still any hæmorrhage. The best way of using it is to pass the knot, already prepared, above the forceps holding the part to be tied. In this way one can begin by uniting the two ends of the suture by means of a double surgeons' knot. The loop thus formed is then twisted on itself half a turn, so as to make a figure-of-eight. The two rings of this are turned one on the other, and in the terminal loop thus obtained the part to be tied is engaged. The theory of this ligature is that a loop of the suture passes above a simple knot, and serves as a sort of bridle preventing the loosening of the tied ends. To make the knot at once, as is usually the custom in operating, a turn of the suture is passed above the first end before tying it with the second, below the loop that has just been made.

George Henry Fox $_{\text{Nov.9,'95}}^{1}$ has adopted a system of circular bandaging by using elastic webbing in roller form. He calls attention to the novel application of this webbing in the form of a circular, or "garter," bandage. This can readily be made by cutting the webbing in pieces of varying length and sewing the ends together, thus making elastic bands, or broad garters, of varying size. With a supply of these at hand almost any part of

the body can be quickly, smoothly, and continuously bandaged, and any degree of pressure exerted which is likely to be required. The lightness and porosity of the webbing make the circular bandage extremely agreeable to the patient who wears it. Save where the bands overlap at the margin, there is but one thickness of bandage, and no ordinary muscular effort on the part of the patient is likely to cause it to loosen or to move from its proper position.

New Instruments.

John B. Harvie, of Troy, $\frac{1}{\text{Sept.22,'94}}$ has had made an operation-table which is suited to a large number of abdominal cases, and, if Trendelenburg's position be desired at any time during the operation, it may be secured without interfering in any way with the patient. The table is free from complications and cannot get out of order, and is perfectly stable and durable. Every part of it can be reached with the greatest facility; so that with little trouble it may be kept perfectly aseptic. It is also inexpensive.



SURGICAL NEEDLE. (FLOOD.)
Medical Record.

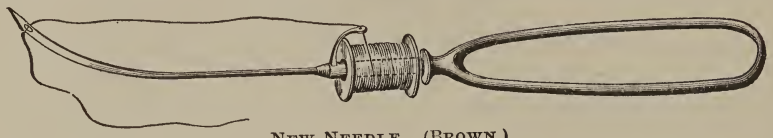
Henry Flood, of Elmira, $\frac{59}{\text{Mar.16,'95}}$ has invented a surgical needle especially adapted for catgut. The point is lance-shape with cutting-edges. It is made broader than the shank, and sufficiently wide to make a puncture large enough for the doubled catgut at the eye of the needle to pass readily through. The shank is made nearly square. His experience with the needle is that it passes through the tissues so easily that suturing can be done by hand, and that it is very seldom necessary to use a needle-holder.

James Spencer Brown, of Montclair, N. J., $\frac{59}{\text{July 13,'95}}$ also contributed a modification in the surgical needle. The desirable features of this over the ordinary Peasley needle are that all handling of the suture material is done away with. No time is lost in threading numerous needles; consequently rapidity of work is assured. (See cut on next page.)

Portable sterilizers have been devised by E. Pierre Mallett, $\frac{1}{\text{May 11,'95}}$ Kronacher, $\frac{336}{\text{May 4,'95}}$ C. C. Booth, $\frac{59}{\text{June 15,'95}}$ G. A. Baxter, $\frac{61}{\text{Aug.27,'95}}$ W. L. Burrage, $\frac{99}{\text{Jan.10,'95}}$ Carl Beck, $\frac{59}{\text{Feb.9,'95}}$ and X. O. Werder $\frac{59}{\text{Apr.6,'95}}$; sterilizing apparatus, by Jankau $\frac{336}{\text{June 1,'95}}$; hospital sterilizer, by A.

Worcester [99 Oct.4,'94]; ligature sterilizer, by V. P. Blair [59 May 25,'95]; ligature-tube holder, by Hewson [1 July 20,'95]; aseptic syringes, by T. Hubbard [59 Jan.5,'95]; forceps for holding instruments, by Ch. Levassort [24 Oct.20,'95]; bone-cutting forceps [6 Nov.10,'94]; catch-forceps, by J. Greig Smith [2 Mar.23,'95]; needle, by Montaz [24 Oct.27,'95]; needle-holder by John Madden. [61 Sept.21,'95]

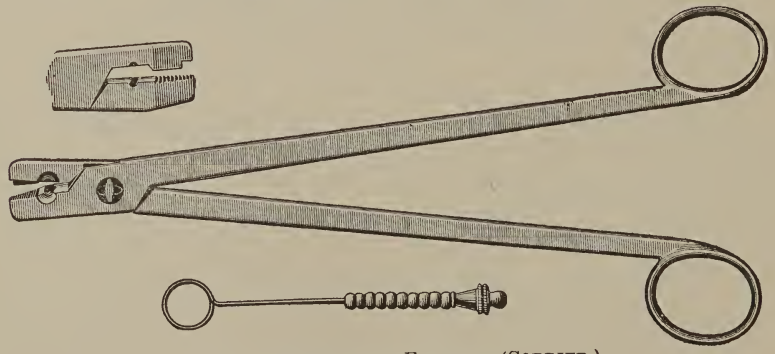
A. H. Cordier, of Kansas City, [72 Sept.,'95] has devised a new shot-compressor and feeder which has the mold in the jaws of the shot-compressor, with the funnel to facilitate the threading. On one



NEW NEEDLE. (BROWN.)
Medical Record.

side, near the end of the jaw of the compressor is a finger-nail blade that acts as scissors. The instrument is made aseptic. It can be taken apart like an ordinary hæmostatic forceps, being composed of only two pieces. (See cut.)

A new ward surgical-dressing carriage has been devised by Gwilym G. Davis, of Philadelphia. [96 Sept.,'95] Aug. Schachner, of Louisville, [96 Mar.,'95] gives suggestions for a portable instrument-bag, operating overalls, a bandage for supra-pubic dressings, a blanket



SHOT-COMPRESSOR AND FEEDER. (CORDIER.)
Kansas City Medical Index.

for protection of patients during operations, a table for the Trendelenburg posture, the sterilization of sponges, and an antiseptic soap-paste.

Clip for ligaturing vessels, A. H. Ward [6 Dec.14,'95]; stylet, Edmond Wickham [24 June 9,'95]; instrument for exploring and draining cavities, G. C. Garratt [6 Apr.13,'95]; antiseptic pocket-cases, C. Edson [1 Aug.31,'95] and R. H. M. Dawbarn [59 Dec.8,'95]; automatic retractor, J. T. R. Roeloffs [1 Dec.7,'95]; drain, Sarfert. [336 Dec.14,'95]

TOXICOLOGY: FORENSIC, ACCIDENTAL, AND INDUSTRIAL.

By the Central Editorial Staff.

submitted for commentation to

C. SUMNER WITHERSTINE, M.Sc., M.D.,

Associate Editor,

PHILADELPHIA.

Alcohol.—W. H. Devine, of South Boston, $^{99}_{\text{Nov.28,'95}}$ reports a fatal case of acute alcoholic poisoning in a child, death taking place twenty-two hours after the fatal dose—only 2 ounces (62 grammes)—had been ingested. The interesting points in connection with the case are the small amount of alcohol taken and the rapid progress to fatal termination following pulmonary œdema. The importance of carefully watching the dose and effects of alcohol in children, particularly in chest cases, is thus shown.

Runkewitch, of Tomsk, $^{673}_{\text{Nov.,'95}}$ studied the action of strychnine in alcohol poisoning, and found that the drug rapidly and distinctly augments the excitability of the motor area of the cortex previously depressed by alcohol. In this manner it raises the action of the depressed respiratory centres and augments the blood-pressure during alcoholic narcosis. It affects the temperature only in doses large enough to cause tetanus. The experiments of the author were made upon animals.

[Strychnine (nitrate or sulphate) is usually administered hypodermatically in doses of 0.002 to 0.01 gramme ($\frac{1}{30}$ to $\frac{1}{6}$ grain) daily or oftener, as indicated by the gravity of the case (see Annual, 1895, vol. ii, F–13; vol. v, A–143).—C. S. W.]

Arsenic.—Carter, of Liverpool, $^{2}_{\text{Oct.27,'94}}$ referring to the Maybrick trial, which took place in Liverpool some five years ago, states that the medical experts for the defense had positively stated that the administration of arsenic in medicinal doses would diminish the secretion of urine, and also that arsenic given medicinally could readily be detected in the urine if it were boiled for a minute or two with a little pure hydrochloric acid and a slip of copper-foil introduced into it. Carter was much struck at the time by these statements, which were so contrary to his own experience and to

the statements made by the leading authorities. Since the trial he had many very careful experiments on these two points, and he now stated positively that in his experience the medicinal administration of arsenic almost invariably increased the secretion of urine, provided that there was no organic disease of the kidneys, and he also affirmed that the rough test with copper-foil would fail to detect arsenic in the urine when it was given as a medicine.

W. B. Hills, of Boston, $^{99}_{\text{Nov.8,15,'94}}$ records the results of 260 analyses of urine for arsenic, representing 180 cases. Of these, arsenic was found in 75 per cent.; but it is not claimed that in all these cases there were symptoms of arsenical poisoning; in many cases Hills states that the presence of arsenic was doubtless a mere coincidence. He is convinced that there are sources of accidental poisoning which have hitherto escaped observation. The discovery of the co-existence of copper in one case—it was not looked for in others—suggests Paris green as one such source sometimes, and presumably in some article of food. He points out, however, that it is possible that in the free use of Paris green in the garden and field we have a hitherto-unrecognized source of poisoning; the soil in many localities is, doubtless, impregnated with the poison. Another possible source is coal; and, if arsenic is a constituent of coal, there can be no doubt that it must be liberated during the process of combustion. The suggestion has also been made that illuminating gas might contain some arsenic, and Hills strongly recommends further investigation in both these directions as likely to lead to important results. The quantity of arsenic eliminated daily by the kidneys is very small,—as a rule, less than 0.01 milligramme per litre of urine; it is not surprising, therefore, that the time required for its elimination should be great; in several of his own cases about eighty days elapsed before the arsenic had completely disappeared from the urine.

P. Meirowitz $^{242}_{\text{Mar.,'95}}$ describes a case of acute poisoning by arsenic with subsequent multiple neuritis in a man who accidentally swallowed a teaspoonful of powdered arsenious acid (about 70 grammes—$2\frac{1}{4}$ ounces) in a glass of water.

J. Dixon Mann and J. Gray Clegg $^{90}_{\text{June,'95}}$ publish an article on the toxic action of arsenetted hydrogen, illustrated by five cases of poisoning which occurred in a manufactory where, for trade purposes, it was necessary to dissolve a considerable quantity of zinc in hydrochloric acid. This was done in an out-house by placing the materials in a large vat, without any means being provided for conducting away the fumes evolved.

Belladonna.—W. T. Mould, of Lucknow, $^{6}_{\text{Sept.28,'95}}$ reports a case of belladonna poisoning by taking a 10-grain (0.65 gramme)

Dover powder mixed with belladonna-liniment instead of water. Nine or ten drachms (36 or 40 grammes) of the liniment ordered that morning were missing. Recovery was obtained by means of morphia injected hypodermatically, but after considerable delay. F. J. Clendinnen [285 Sept.20,'94] reports a case of belladonna poisoning from application of emplastrum belladonnæ.

Camphor.—Maurice Craig, of London, [2 Sept.14,'95] reports a case of poisoning from camphor. The patient took about 3 drachms (12 grammes) as a remedy. About half an hour later he was seized with giddiness and nausea. He had an extraordinary sensation as though taken from his feet and carried through the air. General convulsions occurred, without deviation of the eyeballs; the pupils were equal and small, but did not react to light. The knee-jerks, usually sluggish, were exaggerated. Breathing was rapid, and he was cyanosed; the pulse rapid, but regular. As the cyanosis passed off he became intensely pale. Absolute unconsciousness did not last beyond five minutes, as he began to resist, and opened his eyes upon his name being called. He gradually became colder and more collapsed. Hot flannels and hot-water bottles were freely used, and an hypodermatic injection of 5 minims (0.32 cubic centimetre) of brandy given. Two hours and a quarter after taking the camphor he vomited copiously. The vomited matter consisted of mucus, camphor, and some food, but no blood. From this time consciousness rapidly returned, and he became warmer. His memory was most markedly affected for about an hour after. He had no retention of urine commonly observed in such cases.

Caraway-Seeds.—J. A. Wheeler, of Toowong, Brisbane, [267 Oct.20,'95] reports a case in which a woman, 36 years old, ate 3 ounces (93 grammes) of caraway-seeds in the space of about an hour. She experienced no ill effects till about twenty-four hours afterward, when she began to feel dull and depressed and had some difficulty in collecting and concentrating her thoughts. Her face wore an expression of extreme uneasiness; the cheeks were deeply flushed in circumscribed patches over the malar bones, the eyes were half-closed, and the pupils were dilated and responded sluggishly to light. Vision was blurred, all objects appearing as if surrounded by a white mist. The tongue was slightly tremulous and clear, and the breath had a distinct, though not strong, odor of caraways. The pulse was 62 and full, and respiration was slow and deep. She was giddy and unable to walk or stand without support, and had a feeling of numbness in hands and feet. There was no headache, but she was restless and wakeful. The interest of this case is in its extreme rarity. Caraways are not mentioned in any

work on poisons to which the author had access, and he believes that no record of any other case exists.

Carbolic Acid.—It has been shown by Baumann that carbolic acid, when absorbed, unites with sulphuric acid in the system and forms phenyl-sulphuric ether; also the use of sulphates has been advocated in carbolic-acid poisoning. Marfori $\frac{409}{\text{V.22,No.2}}$; $\frac{112}{\text{Aug.25,'95}}$ records the results of a number of experiments made on animals in order to determine (1) the quantity of phenol tolerated by the organism and the amount of phenyl-sulphuric ether which can be formed; (2) the quantity tolerated when sulphates are administered simultaneously and how much phenyl-sulphuric ether is then formed. These substances were administered by intra-venous injection, and the sulphate used was ammonium sulphate. The author found that the tolerance for carbolic acid increased with the weight of the body of the animal. The quantity of phenyl-sulphuric ether formed—estimated by the amount of this substance in the urine—almost always remained much below that which would correspond to the phenol injected. Dogs were able to tolerate large doses of carbolic acid when ammonium sulphate was administered at the same time. The quantity of phenyl-sulphuric ether formed when carbolic acid and sulphate of ammonium were injected together was greater than when carbolic acid was injected alone. The sulphuric acid of the sulphate injected serves in part for the formation of phenyl-sulphuric ether. A large part of the phenol, however, does not combine with the sulphuric acid. There exists, then, a limit in the capacity of the organism for the formation of phenyl-sulphuric ether. As the tolerance of carbolic acid is increased by the presence of sulphates in the organism, the latter ought to be used in the case of carbolic-acid poisoning, though their action is very limited.

Morochovietz $\frac{996}{\text{Dec.25,'95}}$ reports a case where a female of 19 years, who had swallowed for suicidal purposes 90 grammes (3 ounces) of pure carbolic acid, suffered immediately from vomiting and violent pain, and soon lost consciousness. Neither contraction nor convulsions were present. She was brought to the hospital about three hours after the accident. Appropriate treatment, including thorough washing out of the stomach until the water used had no odor, caused gradual recovery.

Hoffmann's assertion that the mortal minimum dose of carbolic acid in the adult is 50 grammes ($1\frac{2}{3}$ ounces) is consequently contradicted. Morochovietz's case confirms the opinion of Kornfeld, Schmitz, Hoffmann, and Hager that carbolic acid in massive doses, having been absorbed, acts as a depressor upon the medulla oblongata and the spinal cord, giving rise to coma, loss of sensi-

bility and reflexes, and to stertorous breathing. Then, as the dose of poison is eliminated, the phenomena of depression are succeeded by excitement of the nerve-centres.

R. Clement Lucas and W. Arbuthnot Lane, of London, [6 June 1,'95] report two cases of carbolic-acid coma induced by the application of carbolic compresses to the skin.

[Herlyn, of Coblentz, [1126 Dec.15,'95] reports a case in this connection of profound poisoning from carbolic acid following its use as a vaginal injection. The case is interesting in that, while the amount injected was only 6 grammes (1½ drachms) dissolved in 200 grammes (6 ounces) of water, the symptoms were profound: prolonged syncope; pulse-beat, 30 to 35 per minute; infrequent and superficial respirations; clonic convulsions, and inactive pupils. The patient had several profuse, bloody stools which had a strong odor of carbolic acid. The urine, however, was normal.—C. S. W.]

Carbonic Oxide.—G. Marthen, [20 B.136,p.535; 99 Sept.5,'95] in reporting five cases, found the body-temperature elevated in all, the pulse being like that of typhoid fever. The decomposition of proteids is enormously increased. The red blood-corpuscles are considerably increased.

N. Gréhant [99 Sept.5,'95] has studied the influence of time on the absorption of carbonic oxide by blood. When a dog is made to breathe artificially a mixture of air and carbonic oxide containing 100 cubic centimetres of the latter in 100 litres (quarts), after half an hour the blood contains 6 cubic centimetres of carbonic oxide in 100 cubic centimetres; after an hour, 9.2 cubic centimetres; after two hours, 10 cubic centimetres; and after two hours and a half, 9.3 cubic centimetres. With the proportion of carbonic oxide specified, the volume absorbed by the blood becomes practically constant after an hour. With a mixture containing only 10 cubic centimetres of carbonic oxide in 100 litres (quarts), the law of absorption is different, and the proportion of carbonic oxide in the blood gradually increases. After half an hour, 100 cubic centimetres contain 1.42 cubic centimetres of the gas; after an hour, 2.05 cubic centimetres; after an hour and a half, 2.9 cubic centimetres; after two hours, 3.15 cubic centimetres; after two hours and a half, 3.6 cubic centimetres.

J. Haldane [178 v.18,p.458; 2 Dec.14,'95] says that carbonic oxide appears to displace the oxygen of the blood, but a subsidiary effect is to cause a fall of temperature owing to diminished heat-production. This effect was noticed in mice, and Haldane states that some of the men still found alive, but suffering from the effects of after-damp after the terrible explosion in South Wales in 1894, got worse and sank when brought to the fresh air at the bottom of the downcast

pit. At this point the air was cooler and drier than in the workings, and there would be a very rapid current of air. The author suggests that a hot bath might be found useful in cases in which the surface-temperature is low. As is well known, artifical respiration and the inhalation of oxygen assists in clearing the blood of carbonic oxide. As the nervous system suffers especially from the deprivation of oxygen, it is advisable to keep the head low and the limbs raised. Carbonic-oxide poisoning causes serious and lasting damage to the central nervous system; this may cause death long after the patient has been restored to pure air. In such cases it is desirable to ascertain whether the patient is suffering from present want of oxygen or from the effects of previous want of it.

Haldane states that this information may be obtained by examining a specimen of diluted blood. Normal blood diluted with one hundred parts of water in a small test-tube has a yellow color, while blood containing large quantities of carbonic oxide has a pink color. A drop of blood from the patient and a drop of blood from a healthy individual should therefore be diluted with about 100 drops of water; if the diluted blood from the patient is distinctly pink when compared with normal blood similarly diluted, it may be concluded that the patient is in want of oxygen, and the inhalation of that gas if available or the use of artificial respiration should be persevered with. If, on the other hand, the diluted blood is not pink, it will be safe to conclude that the patient is suffering from the after-effects, and special care should be given to keeping him warm and quiet.

Castor-Seeds.—Officer $\frac{285}{\text{July 20,'95}}$ observed a case of poisoning by castor-seeds, in a child, aged 4 years, who had taken some of the seeds. The symptoms consisted of vomiting every few minutes and epigastric pains, with some collapse. The stomach was washed out and some brandy administered. Four hours later the pupils were widely dilated; there was no pulse at the wrist, but the heart-beats were 147 to the minute. The temperature was 96.8° F. (36° C.). There was slight twitching about the eyes and corners of the mouth. Soon afterward purging set in. Ten hours later vomiting and purging had continued, the stools being slightly blood-stained; patient restless, with intense thirst. Seven hours later patient was stupid and semicomatose and the evacuations had been copious, sero-sanguinolent, and about three or four times an hour; five husks of the seeds were passed in the stools. The vomiting had stopped on the following morning and patient had a good pulse and normal temperature. The treatment consisted in strychnine hypodermatically, champagne by the mouth,

and turpentine and laudanum stupes to the abdomen. The patient gradually recovered.

Chloral.—Coudert, of Wallingford, Conn., $^{59}_{\text{July 6,'95}}$ reports a case in which a patient took a 4-ounce (125 grammes) mixture containing 2 grains (0.13 gramme) of morphia acetate and 2½ drachms (10 grammes) of chloral hydrate. Coma occurring, a physician was hastily summoned, who administered potassium permanganate in full doses, some 8 or 10 grains (0.52 or 0.65 gramme) being given, with $\frac{1}{40}$ grain (0.0015 gramme) of strychnia hypodermatically. Shortly afterward he was reacting well, complaining of being somewhat chilly, showing that chloral poisoning was taking place. The following day the patient had quite recovered from the toxic dose. The question arises whether the permanganate has antidotal effect upon the chloral as well as upon the morphine? When first seen the patient was breathing about five times to the minute and was extremely cold. Soon after the permanganate was given reaction commenced, and inside of three hours all symptoms of chloral and opium poisoning had vanished.

John Dougall, of Glasgow, $^{213}_{\text{Feb.,'95}}$; $^{80}_{\text{July 15,'95}}$ publishes an article on a chemical antidote for chloral poisoning. Whatever facts or theories, however, there may be regarding the manner of the hypnotic and anæsthetic action of chloral, Dougall states that there can be no doubt about its chemical composition and affinities, and, in particular, that it is almost at once decomposed, at and above 60° F. (15.6° C.), outside of the body in an alcoholic solution of potassium into formate of potassium and chloroform, and, as the author has proved by trial, somewhat less quickly in an aqueous solution of potassium.

Assuming that a person has taken a poisonous dose of chloral, —say, 80 grains (5.20 grammes)—and that there could with safety be given, as a chemical antidote, 27 grains (1.7 grammes) of potassium, this amount being the quantity by weight in the formula required to decompose 80 grains (5.20 grammes) of chloral; in such a case, says the author, there are strong *a priori* grounds for assuming that in about fifteen minutes the chloral in the system would be entirely changed into formate of potassium and chloroform, or, at least, that so much of it would be decomposed that the residue would be harmless. But 27 grains (1.7 grammes) of potassium swallowed at once, even much diluted, would cause serious symptoms; divided doses—say, 7 grains (0.45 gramme) every hour—in warm milk, gruel, or barley-water would probably cause no serious irritation of the gastro-intestinal tract, while in a short time so much of the chloral would be decomposed as to render the rest at least non-lethal.

[The reaction may be expressed by the following equation: $C_2HCl_3O_2$ (chloral) + KOH (potassium hydrate) = CHO_2K (potassium formate) + $CHCl_3$ (chloroform) + O (oxygen).—C. S. W.]

Chlorate of Potassium.—Theodore Potter, of Indianapolis, Ind., $^{59}_{\text{Mar.9,'95}}$ reports a case of chlorate-of-potassium poisoning. The patient, having a slight sore throat, had bought the drug, getting about two teaspoonfuls. This quantity had been used in about two days. The urine and fæces were both black. There were violent intestinal irritation and equally violent urinary disturbance, great prostration, and the evidences of profound alteration of the blood.

[The lesions and blood-changes are fully noted in a case reported by Ignatieff, of Moscow (see ANNUAL, 1894, vol. iv, G–19). —C. S. W.]

Chloroform.—J. T. Heymans, of Ghent, Belgium, $^{2}_{\text{Dec.21,'95}}$ reports a series of experiments in the rabbit, showing that, in chronic poisoning by subcutaneous injection of chloroform, the hepatic cells undergo a gradual change, and also the tissues immediately surrounding them; so that at length the liver presents all the appearance of true cirrhosis.

Cocaine.—Maurel, of Toulouse, $^{6}_{\text{Nov.24,'94}}$ after a series of laboratory experiments to ascertain the mechanism of death, states that the drug acts on the capillaries, causing their contraction, and on the leucocytes, which, under its influence, become globular and rigid, while they swell and lose their property of adhering to the sides of the blood-vessels. It is thus seen that thrombosis and embolism (the plugs being composed of the red corpuscles) may easily form, and, according to Maurel, pulmonary embolism is the *contretemps* most to be dreaded when cocaine is employed. Arguing that intra-arterial injections of cocaine made in the direction of a non-vital part of the body would be harmless, Maurel confirmed this by introducing with impunity into the femoral artery of the rabbit as much as 0.10 gramme ($1\frac{3}{4}$ grains) per kilogramme ($2\frac{1}{5}$ pounds) of body-weight. He has observed the leucocytic changes mentioned above when a small quantity of a concentrated solution of cocaine—*e.g.*, 10 per cent.—is injected. This exemplifies the danger of employing strong solutions for anæsthetic purposes. In conclusion, Maurel states that, in fatal accidents from cocaine, the chief and most frequent cause of death is pulmonary embolism due to the swollen and paralyzed white corpuscles forming plugs in the contracted capillaries of the lung.

G. M. Johnston, of Leith, $^{2}_{\text{Nov.9,'95}}$ reports a fatal case of cocaine poisoning in a girl 16 years old. The main symptoms were: a series of six convulsions in succession, the arms and legs being

most affected, the face least; there was frothing from the mouth, toward the end blood-stained. She never regained consciousness, and, forty minutes after taking the dose, she died. The quantity taken was about 2 drachms (8 grammes) of a 10-per-cent. solution, equal to 12 grains (0.78 gramme) of the salt. The large dose, the fact of its being taken the first thing in the morning on an empty stomach, and hot tea taken immediately after would all tend to quicken the effect.

Walker [6 Feb.2,'95] cites the case of a man who had swallowed 8 or 9 grains (0.52 or 0.58 gramme) of cocaine. His symptoms were: constriction of the throat and region of the heart; great difficulty in swallowing; mental dullness. The pupil light-reflex was absent and the pupils were dilated. His appearance was that of a person partly under the influence of alcohol, but the most striking feature was the state of the muscular system; he resembled a bad case of chorea; the movements were slower, however, and more regular. The body was alternately rotated from side to side and bent at the same time, while the arms and legs were not still for a moment. He appeared to be constantly masticating, but could not swallow. There was some lividity of the lips. Amyl-nitrite was administered, with immediate benefit. All of the symptoms disappeared in about five or six hours.

E. N. Nason, of Nuneaton, [6 Nov.17,'94] reports a case of temporary cocaine poisoning in a trained nurse, 29 years old, who, in order to test a solution of the hydrochlorate which was supposed to have lost its strength, injected into her arm 20 minims, representing 5 grains (0.32 gramme) of the alkaloid.

J. B. Mattison [760 Nov.3,'94] mentions four fatal cases of recent date, all following the use of 4-per-cent. solutions. Two were urethral cases; in one 0.060 gramme (1 grain) and in the other 0.020 gramme ($\frac{1}{3}$ grain) was the dose employed. The third was from the application of the same percentage to a blistered surface; the fourth was a rectal case, and the dose was 0.040 gramme ($\frac{2}{3}$ grain) in two portions with an interval of ten minutes. The symptoms were excitement, convulsions, and death, in the third case all in one minute. Autopsies on the first two showed intense pulmonary congestion.

Raoul Pacaud, of Angles, Vendée, [35 Oct.12,'95] reports a case where a child, 9 months old, was given a teaspoonful of a 20-per-cent. solution of cocaine chlorhydrate—that is to say, a relatively enormous dose of cocaine—without fatal result.

Copper.—Oppenheimer [764 Mar.,'95] describes the case of a coppersmith who had for four years been exposed to very fine copper-dust, and who was not very cleanly in his habits. For six months

he had had vague stomach symptoms,—nausea, occasional vomiting; some distress, but no actual pain, after eating; no colic. Examination of chest and abdomen was negative. The chief point of interest was the hair, which was green. This was more marked on the head and the moustache; but all over the body, in the axillæ, over the pubes and shins, there was the same coloration. Copper was easily demonstrated chemically. Boiling of the hair in water did not remove the color, but ammonia did so at once. This result may, as a rule, be avoided by scrupulous cleanliness. The part first affected is the moustache, and next the head; though, if the latter be protected by a thick cap it will be free. The color appears a few days after starting work, and is more apt to appear during the summer, when perspiration is free. The underwear also assumes a greenish tinge wherever it has been thoroughly wet with sweat. These cases seldom show gastro-intestinal disturbance; but a severe, distressing cough is not uncommon, and occasionally ends fatally.

[Filehne [69] No.19,'95 notes the many opportunities for the ingestion of this metal which gives rise to chronic poisoning. In guinea-pigs he observed loss of body-weight, particularly anæmia of all tissues and organs, enlarged spleen, small and fatty liver, anæmic kidneys; pale, mucous membranes; the intestine, beyond pallor and possibly some swelling of the epithelium, was normal; in doses not large enough to produce emesis, copper in combination with potassium tartrate may be dangerous, and, as this double salt may contaminate wines, this fact becomes important. In 1889 Dauscher reported a case of poisoning from this source in which the symptoms were gastric pain, fainting, tenesmus, muscular twitching, and later jaundice, the last two symptoms being especially significant of the cause of the poisoning.—C. S. W.]

Creolin.—Pinner [69] No.41,p.680,'95 saw a case of poisoning by creolin, occurring in a woman of 60 years, who had taken 75 grammes ($2\frac{1}{2}$ ounces) of it. Coma ensued; the face was pale, the skin moist, the lips cyanotic; the right pupil more dilated than the left, but both rather small and reacting with difficulty to the light. The reflex of the cornea was abolished. The rectal temperature was 36.6° C. (97.8° F.) and the pulse of medium strength and regular, with 112 beats to the minute. Respiration was deep and stertorous, with a tracheal sound. There was much white mucus in the pharynx. The soft palate and posterior wall of the pharynx were covered with a superficial burn, brownish in color. A strong odor of creolin was noted in the exhaled air. The patient recovered.

Cyanides.—Kossa [365] No.17,'94 has stated that animals to which toxic

doses of potassium cyanide had been given were restored by the immediate administration of potassium permanganate. In one animal so treated a dose ten times the lethal one failed to kill. When toxic doses of the cyanide are mixed with potassium permanganate and the mixture allowed to stand some hours, its administration is followed by no bad effects. The cyanide is probably converted into an hydrocarbonate, then into a carbonate, and finally into urea. Antal [2168 '95] says that potassic permanganate used by Kossa is perhaps the most efficient of chemical antidotes, but that it is useless when the poison has reached the circulation. The author has investigated the action of nitric oxydulate of cobalt in this respect. When cyanides are present in the stomach of an animal and a solution of this cobalt-salt is introduced, a harmless potassic cobalticyanide (K_3CoCy_6) is formed. That the cobalt-salt can render absorbed cyanides harmless is due to the rapidity of its absorption and to the small quantity needed to make large quantities of cyanide inert. The author concludes that, to render inert already absorbed cyanide, a $\frac{1}{2}$-per-cent. solution of the above-named salt (10 to 30 cubic centimetres—$2\frac{1}{2}$ to 8 fluidrachms) should be injected subcutaneously; at the same time a similar solution should be given by the mouth or, if that is impossible, passed into the stomach by means of a tube, to neutralize any cyanide still present there. In the above solution the toxicity of the cobalt-salts is avoided, its poisonous effects depending only on their concentration.

Ergot.—Schwartz, [31 Mar.2,'95] in reporting two cases of ergotism with threatening gangrene, recommends the following mixture for such cases:—

℞ One per cent. alcohol sol. of nitroglycerin, . 15 drops.
Distilled water, ... 180 grammes (6 ounces).
Sig.: One tablespoonful three times a day.

Schwartz adds that nitroglycerin must not be given in too large doses, as it is capable of transforming hæmoglobin into methæmoglobin. He states that all the nitrites, however introduced, give rise to gastro-enteritis by the energetic formation of nascent oxygen in the glands.

Exalgin.—Weber [35 Nov.3,'94] reported a case of poisoning from $\frac{1}{2}$ ounce (16 grammes) of exalgin dissolved in 3 ounces (93 grammes) of water. Five hours after taking the dose the patient suffered from restlessness and vertigo; anæsthesia and great dyspnœa followed. The blood was black and thick, resembling pitch. Injection of caffeine, electrization of the phrenic nerves, administration of a purgative emetic, and bleeding were ordered. Some minutes after, convulsive crises came on with cyanosis. These were combated by

injections of caffeine and ether. Anuria persisted for twenty-four hours; then there was emission of urine resembling that of persons poisoned by carbolic acid, and containing blood, biliary pigments, and albumin. Recovery ensued. Weber considered the phenomena analogous to those of uræmia. Dujardin-Beaumetz, in the discussion, expressed the opinion that the exalgin, which is but moderately soluble, had been only partially absorbed. He added that the symptoms resembled those of acetanilid poisoning.

F. G. Crookshank $_{\text{May 25,'95}}^{6}$ reports the following case of poisoning by exalgin, in a woman, aged 30, extremely thin, who was under his care for severe asthma and consequent insomnia. She was given by a friend 5 grains (0.32 gramme) of exalgin. Within five minutes she screamed out and became perfectly stiff. Twenty minutes later, when Crookshank saw her, she was profoundly unconscious, her respiration being very shallow and infrequent and rapidly failing. The lips and finger-tips were markedly cyanosed and the extremities were cold; the pupils were widely dilated and fixed; the knee-jerks were absent; the pulse was 95, small, and feeble. One-fifth grain (0.012 gramme) of apomorphine was given at once, but failed to produce emesis. Free stimulation with brandy and coffee, vigorous flagellation, faradization, and occasionally artificial respiration were employed for three hours, at the end of which time the cyanosis had nearly disappeared and respiration was fairly well established. The patient, when roused, was incoherent and failed to recognize her surroundings, rapidly relapsing into unconsciousness. About an hour afterward there was an evident tendency to heart-failure, the pulse dropping repeatedly below 50 and becoming irregular and feeble. Ether was given at regular intervals hypodermatically. Nine hours after taking the drug the pulse and respiration were both good, the pupils reacted well, and the knee-jerks were present. No urine could be drawn off with a catheter. The next day the patient was perfectly well except for aphonia, which lasted for some hours. The points of interest in the case appear to be the rapidity of the onset of the toxic effects and the evident danger in giving even moderate doses of exalgin—a respiratory poison—to asthmatics.

Filix Mas.—Masius $_{\text{Dec.4,'95}}^{3}$ and his assistant, Mahaim, observed that the primary lesion of the optic nerve in poisoning by filix mas, which ends in amblyopia and blindness, is the vascular lesion. Its presence can be demonstrated before a functional alteration of the optic nerve can be perceived, and when there is not as yet alteration of the nerve-fibre. This vascular lesion consists in proliferation of the capillaries and cellular infiltration of the perivascular space. It soon gives rise to compression of the

nerve at the optic foramen. Later on there is to be found in that space only an homogeneous mass forming a thick wall to the capillary. When these lesions are far advanced the nerve-fibres disappear; they remain longest near the retina; on a level with and behind the optic foramen the empty space which they leave is filled by a tubercular mass containing proliferating cells.

Laburnum.—Saake [69 June 6,'95] records three cases of poisoning by the fruit of *Cytisus laburnum*, occurring in children aged 4, 4, and 3 years, respectively. The symptoms somewhat resembled those of cholera, but there were general clonic convulsions and the temperature was raised. There was also some likeness to strychnine poisoning. In one case the diarrhœa continued for twelve days, with abdominal distension. In all three cases there was a greatly diminished excretion of urine up to anuria. The treatment generally consisted in an emetic and castor-oil at the outset and small doses of opium later; in the case in which the diarrhœa persisted for several days large rectal injections were used.

O. Kile, of Winsford, [22 Sept.4,'95] also saw five children, whom he found pale, collapsed, with dilated pupils and vomiting, laburnum-seeds being present in the vomited matter. Under prompt treatment with emetics and stimulants all the children recovered. The seeds of common laburnum (*Cytisus laburnum*) contain a narcotico-acrid, crystallizable alkaloid—cytisine—producing vomiting, foaming at the mouth, convulsions, and insensibility. Cases are reported by Hedley Tomlinson, of Gateshead-on-Tyne, [2 Sept.28,'95] and A. H. Stephen, of Rishton. [26 Oct.1,'95]

Lead.—Gautier, of Paris, [2 Aug.17,'95] in a report on dangerous trades, illustrates the advantages of proper legislation in preventing the toxic effects of dangerous occupations. During the years 1884 and 1885 the administration strictly enforced the measures formulated in 1881, concerning the sanitation of factories and workrooms where lead is used. From 1876 to 1880, when these instructions were not put into force, there were 552 lead-workers annually treated in the hospitals, the entire number of lead workers amounting to from 28,000 to 30,000. The days of treatment amounted to 11,140; five deaths resulted. From 1884 to 1886 there was a very evident decrease. Careless supervision on the part of the inspectors allowed saturnism to increase, but the possibility of reducing the mortality had been demonstrated. Painters and those who mix colors suffer most; from 1890 to 1893 760 were invalided.

[Dufour [203 Feb.1,'96] reports a case of acute poisoning from the ingestion of cakes containing lead chromate, the latter being used by bakers as a color-substitute for eggs, which recalls the elaborate

analysis of sixty-four pronounced cases of a similar character reported by David S. Stewart, of Philadelphia, in 1887 (see ANNUAL, 1888, vol. v, p. 110).—C. S. W.]

Nitric Acid.—W. Moser, of Brooklyn, $^{157}_{\text{Dec.,'95}}$ states that, as is well known, nitric acid usually produces a yellow stain on living tissue, but the stain produced may vary, sometimes being white or black. In the case which he records, it was yellow. The mucous membrane of the œsophagus was softened. The longitudinal folds were abnormally prominent and covered their entire length by yellowish streaks. The mucous membrane between these folds was a little reddened and soft, but not stained. The mucous membrane of the stomach, on the other hand, was converted, from its cardiac to its pyloric extremity, into one very thick, greenish-black slough. The mucosa was thrown into very prominent folds.

Nitrobenzol.—W. Schild $^{4}_{\text{Mar.4,'95}}$ relates 6 cases of nitrobenzol poisoning. Nitrobenzol is used in perfumery as a substitute for essence of bitter almonds. It is very poisonous, and 20 drops have been known to cause death. By timely treatment, however, recovery has taken place after much larger quantities. The author quotes Lewin, who collected 51 cases showing a mortality of 37 per cent. Besides the usual symptoms,—headache, vertigo, vomiting, cyanosis, dyspnœa, trismus, etc.,—Schild noted in his cases the following points: In 3 cases temporary increased knee-jerks and ankle-clonus were noticed. In 3 cases some jaundice appeared on the third or fourth day. Lastly, note is made of fever occurring at about the same time and of the appearance of albumin in the dark-brown urine, which also smelt of nitrobenzol. Treatment consists of washing out the stomach, artificial respiration, and the various kinds of stimulation. In cases of deep sopor and where the respiration is much affected, a bath with cold-water douche is recommended.

Nutmeg.—Alexander L. Hodgdon $^{814}_{\text{V.7,'94}}$; $^{451}_{\text{Apr.,'95}}$ records the case of a woman who was poisoned by eating two nutmegs at night and the same quantity the next morning. When he saw the patient, the following afternoon, she was very drowsy, the pulse was 120, the pupils widely dilated and not contractile to light, and there was pain in the region of the umbilicus. A decoction of strong tea and tablets of digitalis, strophanthus, belladonna, and nitroglycerin were administered, and 1 grain (0.065 gramme) of caffeine citrate given every hour or two. The next morning the pulse was 80 and very weak and wavy, the pupils were very much contracted, the temperature had risen one degree, and the urine was loaded with phosphates. On the fourth day there was sweating, confined to the lower extremities, which, with the mydriasis, formed the most

interesting features of the case. A case is also reported by T. G. Simpson [6 No.3725,p.150,'95] in a healthy woman, 26 years of age, who had taken but two nutmegs, bruised, in a small quantity of gin.

Opium.—William Moor, of New York, [2 June 2,'95] publishes an article on permanganate of potassium as an antidote, which gives in substance the details presented in the 1895 ANNUAL, vol. iv, G-29.

J. Barker Smith, [2 July 6,'95] alluding to the above paper, claims that he introduced an acid solution of potassium permanganate as a quantitative test for morphine and the cinchona alkaloids in 1887, and that he recommended a solution of potassium permanganate as an antidote for morphine, opium, and laudanum in 1884. He refers to the label of his test-preparation, on which is to be seen "As an antidote to opium, morphia, and laudanum the diluted solution may be administered in doses of a wineglassful." The author frankly recognizes, however, that probably sixty thousand cases of opium or morphine poisoning have occurred since he first published the antidote, in 1884, and implies that the fact that Moor risked his life to prove the actual value of his antidote caused the latter to receive serious attention.

Graham Chambers, of Toronto, [39 Sept.,'94] in experiments with potassium permanganate as an antidote to morphine, arrived at the following conclusions: (1) potassium permanganate in dilute solution, not stronger than 1 grain (0.065 gramme) to one ounce, may be given by the stomach without danger; (2) subcutaneously it is poisonous; (3) grain for grain, it completely decomposes morphine, the decomposition occurring in acid media more rapidly than in a neutral medium; (4) foodstuffs and acetic acid do not interfere with its decomposition; (5) it is an efficient antidote if taken while the morphine is in the stomach.

The question still remains as to whether potassium permanganate is of therapeutic use after the morphine is absorbed into the system. It has been proved conclusively that if morphine be introduced subcutaneously into the system it is excreted into the stomach. Now, the morphine passes from the blood into the stomach by osmosis and by excretion, and, by the principle of osmosis, more morphine will be excreted if it be decomposed as soon as it passes into the stomach. Reasoning on this principle, we would expect that repeated small doses of potassium permanganate by the stomach would be of use in cases where the morphine has been absorbed into the system. This is rendered more probable by the fact that morphine, as a rule, is a slow-acting poison.

W. Moor, of New York, [59 Mar.2,'95] in a report of cases of opium

poisoning successfully treated by permanganate of potassium, cites one in which quick recovery was obtained after the ingestion of 60 grains (4 grammes) of opium, and after a fatal issue had seemed almost inevitable. He says that such a recovery is so remarkable that it fully justifies his claim that permanganate of potassium is the best antidote for opium. The author in another paper $^{9}_{\text{May 4,'95}}$ states that he can now point to about thirty-five cases of opium poisoning in which potassium permanganate has proved its great value. Yet in these it would have acted even more promptly had it been employed at the very beginning of treatment instead of as a subsequent measure to other plans of treatment. The physician should at once administer a sufficient quantity of the permanganate on reaching the bedside, while in ambulance cases the surgeon should first administer the potash salt before conveying the patient to the hospital, otherwise the jolting of the vehicle promotes the absorption of the poison.

Eli Browning, of Tipton, Iowa, $^{186}_{\text{Dec.,'95}}$ states the case of a young man who was brought to his office about thirty minutes after having taken 10 grains (0.65 gramme) of morphine. The toxic symptoms being manifest, Browning gave $2\frac{1}{2}$ grains (0.17 gramme) of potassium permanganate internally to antidote what of the poison might still be in the stomach, and gave a like amount hypodermatically. This was repeated at intervals of fifteen or twenty minutes till the patient rallied from the morphine. No other remedy was used except $\frac{1}{10}$ grain of nitroglycerin to stimulate the heart's action. In two hours the patient was considered safe and in three hours was left with friends positively out of danger.

[As the usual dose of nitroglycerin is from $\frac{1}{200}$ to $\frac{1}{50}$ grain (0.00032 to 0.0013 gramme), the dose mentioned is evidently a typographical error, and should read $\frac{1}{1000}$ grain (0.00065 gramme). I should consider the dose given *very dangerous*.—C. S. W.]

Nathan Raw, of Dundee, $^{2}_{\text{July 13,'95}}$ describes five cases. In one of these the patient was profoundly unconscious and evidently in the last stage of narcosis. Her stomach was at once washed out with a warm solution of Condy's fluid—2 drachms (8 grammes) to a pint ($\frac{1}{2}$ litre) of water—until the washings were quite colorless. She was then given 2 drachms (8 grammes) of liquor potassii permanganatis every hour for two hours. Artificial respiration was kept up for two hours in addition. She made a good recovery. The cases related are considered by the author as abundant evidence of the great value of the permanganate salt in cases of opium poisoning. Besides, the procedure is considered so simple and harmless as to readily recommend itself in all cases.

William E. Putnam, of Whiting, Ind., $^{59}_{\text{Mar.9,'95}}$ alludes to two men

who died from morphine poisoning in less than two years, in his neighborhood, under usual measures, and relates a third case saved by means of potassium permanganate. The quantity administered, 45 grains (3 grammes), illustrates the harmlessness of the antidote.

Norton Downs, of Germantown, Pa., [80 July 15,'95] relates a striking case. He first administered some apomorphine, but, although the action of the drug was most satisfactory, only a small portion of the poison swallowed was vomited. The case assuming a grave aspect, the author hurriedly injected ½ grain (0.03 gramme) into the thigh and repeated the dose a moment later. In less than fifteen minutes from the time the last hypodermatic injection was given, from being in a condition of almost absolute coma, with pin-point pupils, a slow pulse, and infrequent respiration, the patient had entirely returned to consciousness. The pupils were dilated, the pulse about 100, and in a perfectly natural manner he was talking of the sensations through which he had passed. The length of time elapsing from the taking of the laudanum—which Downs estimates at about 3 drachms (12 grammes)—to the time the patient was given the permanganate of potassium, of which he received 1 grain (0.065 gramme), was about two and a half hours.

Hilbert B. Tingley, of Rockaway Beach, N. Y., [59 Nov.3,'94] treated a child, aged 18 months, poisoned by two morphine pills, ¼ grain (0.015 gramme) each. He gave about 1 grain (0.065 gramme) of potassium permanganate at once, and, as he wished to give the drug a thorough trial, resorted to no other agent, not even an emetic. A second grain was given and the little patient put to bed. During the night the child had some delirium of a wild nature and had little sleep, but next day appeared none the worse for its overdose of morphine.

Cases are also recorded by R. G. Ebert, of Fort Huachuca, Ariz., [59 Mar.9,'95] and George F. Suker, of Toledo, Ohio, [811 July,'95] in which gratifying results were obtained. A case in which permanganate of potassium was reported as inefficient by A. C. McDonald, of Warsaw, Ind., [59 Sept.28,'95] can hardly be considered as furnishing negative evidence, the patient having recovered under the influence of a number of agents which might all be considered in the same light.

J. Howard Seiple, of Centre Square, Pa., [119 Dec.7,'95] reports a case illustrating the value of strychnia in opium poisoning. The doses varied from $\frac{1}{30}$ to $\frac{1}{12}$ grain (0.002 to 0.005 gramme), the usual doses having been found ineffectual.

George S. Brown, of Birmingham, Ala., [9 Sept.7,'95] alludes to the dangers of apomorphine in the treatment of opium poisoning. In a case described he gave the patient $\frac{1}{6}$ grain (0.01 gramme) of apomorphine hypodermatically. The heart's action, which had

been fairly good up to this time, quickly thinned away and in fifteen minutes the patient was dead. He states that, in the first place, emesis is essentially a muscular act and cannot possibly occur without vigorous contractions of the muscular coat of the stomach, together with fixation of the diaphragm and abdominal muscles,—conditions impossible to effect in that state of extreme muscular relaxation which accompanies narcosis from opium or alcohol.

A. Brothers, of New York, [51] Feb.,'95 reports a case of opium poisoning in a 5-month-old baby, who was given, by mistake, one of the powders prescribed for the father and containing 1 grain (0.065 gramme) of opium. An hypodermatic injection of $\frac{1}{400}$ grain (0.00016 gramme) of atropine sulphate and the usual measures, including washing of the stomach by means of a soft-rubber catheter attached to a fountain-syringe, obtained complete recovery.

C. D. Simmons, of Dutch Town, La., [9] June 22,'95; [673] Aug.,'95 used hypodermatic injections of strong black coffee in a case of accidental opium narcosis in a child 5 months old, injecting 20 minims (1.3 grammes) every ten or fifteen minutes. At the same time artificial respiration and titillation with the ends of the fingers over the ribs were kept up, and in six hours the little patient was out of danger.

James D. Voorhees, of New York, [59] Nov.30,'95 describes two cases of morphine poisoning treated principally by forced respiration. The author argues that artificial respiration cannot be kept up adequately and sufficiently by the Sylvester method, and describes O'Dwyer's modification of the method originated by Fell, of Buffalo, by means of which, a tube being inserted into the larynx, the air is forced in by a bellows, thus avoiding tracheotomy. The instrument consists of a metal tube, curved at right angles, on the distal end of which is a grooved cone which fits the laryngeal socket. The cones are of different sizes. The proximal end has two openings, one receiving air from the bellows and the other closed by the thumb during forced respiration. The thumb is removed during expiration, or the collapse of the chest. The insertion is comparatively easy. A mouth-gag is used, the tongue drawn out, the epiglottis held back by the first finger of the left hand, and the tube inserted in the median line by the right hand. When well in the larynx, on inspiration the chest rises fully and no air escapes except when the cone is too small, when a larger size can be put in. This is kept up regularly twelve times a minute, and atomized water is forced into the tube occasionally to keep the passages moistened. The cases related illustrate,

according to the author, how ineffectual artificial respiration by the Sylvester method is, and the fact that atropine, stimulation, and potassium permanganate would have been without results. He admits, however, that each helped toward a safe termination, and that perhaps the permanganate was not used in large enough doses and as frequently as required.

[The successful use of potassium permanganate as an antidote to morphine has been reported by J. T. M. Lindsay, of Cuero, Texas $\frac{59}{\text{Dec.14,'95}}$; J. S. Carpenter $\frac{80}{\text{No.3,'95}}$; G. S. Walker, of Cork $\frac{2}{\text{Jan.11,'96}}$; G. E. Huddle, of Kempner, Texas, $\frac{186}{\text{Oct.,'94}}$ and others. J. W. Stickler, of Orange, N. J., $\frac{59}{\text{July 20,'95}}$ from experiments on dogs, pigeons, and men, believes cocaine preferable to the permanganate. He advises, after the use of an emetic, the hypodermatic injection of 0.016 gramme ($\frac{1}{4}$ grain) of cocaine, repeating it twice at twenty minutes' interval if necessary.—C. S. W.]

Phenacetin.—Krönig $\frac{3}{\text{Nov.13,'95}}$ examined the blood in a case of poisoning by phenacetin. He found decided leucocytosis and a most peculiar alteration of the red blood-corpuscles; by the side of normal corpuscles existed degenerate forms of every variety; there was likewise much poikilocytosis. The alteration of the red corpuscles consisted in the fact that the hæmoglobin was in great part dissolved.

Similar accidents have already been noted with phenacetin. Hinsberg and Krafft have observed that the ingestion of from 3 to 5 grammes (45 to 75 grains) gives rise, after two to three hours, to acceleration of the respiration and pulse, with coma, vomiting, and cyanosis of the mucous membranes. Examination of the blood reveals the presence of hæmoglobin.

[General methæmoglobinuria and destructive kidney changes occasionally follow the use of phenacetin, which fact reminds us that the initial dose of phenacetin, as well as other new antipyretic drugs, should always be small.—C. S. W.]

Phosphorus.—Amon and Falcone $\frac{996}{\text{Feb.25,'95}}$ state that the most marked pathological changes are to be found in the liver, in the neighborhood of the small interlobular systems. The biliary canaliculi show no visible catarrhal or desquamative changes. In the intestine the maximum of the cellular changes is localized to the bottom of the glandular blind pouches, especially in the large intestine.

Lo Monaco, $\frac{409}{\text{v.22,p.1,'95}}$ to the action of slow phosphorous poisoning on nutrition, states that fasting rabbits resist longer than those that are fed. Doses which are harmless for the fasting animal are mortal for the animal that eats. This explains why the minimum mortal dose of phosphorus is unknown. Interesting in this

connection are the experiments of J. Noe, [14] Apr.21,'96 which show that, while phosphoretted hydrogen gives rise to the same toxic effects as those of phosphorus, red phosphorus is not poisonous; consequently the cause of the toxic quality of white phosphorus must lie in the production of phosphoretted hydrogen when in contact with living tissues. In other words, when white phosphorus is introduced into the digestive tract phosphoretted hydrogen is given off, which, being easily absorbed, passes into the blood and gives rise to disturbances which prevent hæmatosis. This pathogenesis being granted, a new method of treatment is to be followed, which consists in acting against the formation and absorption of phosphoretted hydrogen.

As a corollary of the above, Magitot [22] Mar.23,'96 in an investigation among the hands of the State match-factories of France, found that all the men employed in the making of white-phosphorus matches constantly inhale the noxious vapors, and that they all, without exception, suffer more or less from phosphorism. The general symptoms are the well-known cachectic condition, subicteric color of the skin, garlic odor of the breath, presence of phosphorus in the urine and saliva, wasting of the soft tissues, and a modification in the chemical constitution of the bones, besides the special manifestations due to any predisposition of the individual,—chronic enteritis with diarrhœa, nephritis, cystitis, bronchitis, fragility of the bones, and the production of necrosis of the inferior maxilla so frequently met with.

W. Moor, of New York, [1] Feb.2,'95 states that permanganate of potassium has absolutely no antidotal virtues *per se* against phosphorus, for not even contact of these two substances lasting sixteen hours will result in any mutual reaction.

Quinine.—A. Ernest Roberts, of Aligart, India, [6] Mar.9,'96 communicated a remarkable case of poisoning by quinine in a woman of 36 years. The dose taken was fully 5 drachms (20 grammes). The patient became totally unconscious and inert. The whole surface of her body was deadly cold and blanched, or, rather, livid; her temperature (axilla) was 95° F. (35° C.); breathing almost imperceptible, shallow, and slow; and the pulse was 45, thin and small. Her eyes were closed and the pupils were considerably dilated, there being no response to light; no tendon-reflex was obtained, and there was no response to external stimuli. She vomited "coffee-ground substance" several times. Definite and obvious signs of rallying were deferred until the next day, and it was then ascertained that, in addition to slight deafness, she was blind, even to total non-appreciation of strong sunlight. The deafness gave no trouble; perfect hearing was restored within a week, with the

gradual return of general functional activity, but it was long ere all traces of the tremendous shock to the general system had disappeared. The ophthalmoscope showed a blur or haze over the whole perceptible retinal field, with distinct deepening of color (congestion), especially concentrated in the macula; the discs were not definitely altered in color, but, if anything, perhaps also of a slightly deeper tint than normal, with ill-defined margins. This stage was of short duration. The tint of congestion and the blur alike disappeared, and in a week from the onset the retinal vessels, both veins and arteries, became well defined and contracted and the optic discs became distinctly pale; the pupils remained widely and equally dilated and insensible to light. During the fourth and fifth months a certain distinct, but small, improvement could be noted at considerable intervals. The absolute "blindness" lasted two weeks; the first perception after that was the flash of light from the ophthalmoscopical mirror, but there was no perception of external objects until the third or fourth week, when certain things—a small, bright-metal time-piece; the looming figure of an individual—were seen at a distance of four to eight yards. This distant vision was a marked feature of the case for two or three months, and, though it gradually gained in distinctness of outline and detail, was a blurred impression on a dim and hazy background. A noticeable point during the fourth week also was her perception at a distance of dark, linear objects, —*e.g.*, the parallel beams of the roof of the bungalow and the cross-bars of the windows in the doorways. Color-blindness was marked from the first, but about the sixth week this condition improved, red and yellow being best distinguished. From the sixth to the eighth week onward, with occasional relapses synchronous with a return of the menorrhagia and other disturbances of the general health, she gained ground in all points. At present she gets about, reads and writes, and uses her mirror satisfactorily for toilet purposes, but her color-vision is defective, red and yellow being still most easily distinguished, and these at a distance, nearness of approach causing objects to appear black, the general hazy blur of the background of the visual field being also a trouble.

Rhus, or Poison Ivy.—W. R. D. Blackwood, of Philadelphia, recommends $\frac{109}{\text{Sept.,'95}}$ europhen in so-called ivy poisoning. It may be employed in a 10- to 30-per-cent. ointment with vaselin, a solution of the same strength in almond-oil, or a dusting-powder with talcum varying from 25 to 50 per cent. according to the degree of cutaneous irritation present. He advises a preliminary application of a saturated aqueous solution of sodium bicarbonate to neutralize the toxicodendric acid.

[The milder strength is advised, as a 10-per-cent. ointment has, in the editor's hands, proved annoying and painful, though ultimately effectual. The application of sodium bicarbonate in a saturated solution promptly relieves all itching and burning.—C. S. W.]

Santonin.—Combemale, of Lille, $^{181}_{\text{July 12,'95}}$; $^{673}_{\text{Sept.,'95}}$ from his personal experiments in acute poisoning by santonin, concludes that the moment the drug appears in the urine it becomes dangerous. When within two hours after a dose of santonin the urine takes a red color on the addition of potassium solution, the danger is imminent. This test can be employed to detect a slight degree of intoxication by the drug and prevent chronic or subacute poisoning. If the santonin be followed by a purgative to evacuate the ascarids for which the vermifuge is given, there will usually be no necessity to give large doses,—a practice which the author condemns. Louis Diret, of Janzé, $^{100}_{\text{Sept.19,'95}}$ also reports a case.

[Small doses of santonin are preferable, as suggested above, followed by a brisk cathartic. Sodium santoninate or, better, santoninoxime is preferable to santonin, as less likely to give rise to untoward symptoms..—C. S. W.]

Scopolia Lurida.—Allan Macnab $^{6}_{\text{Mar.9,'95}}$ refers to several cases of poisoning by this plant among Indian troops. The patients suffered from a series of symptoms which were very distinctive of belladonna poisoning,—viz., marked dilatation of the pupils, a feeling of constriction in and dryness of the throat, a peculiar variety of fussy delirium with hallucinations, and the loss of power of co-ordination in the lower extremities. After giving each man 60 grains (4 grammes) of lime-sulphate, which produced emesis in every case, he administered morphine hypodermatically to the worst two cases, and had all taken to the nearest field hospital. Arrived there, the next three hours were employed in giving ammonium carbonate to induce emesis and then in keeping the men constantly moving. This treatment answered very well, and in a short time all were in a condition which permitted of their being put into tents.

Strychnine.—R. W. Lloyd, of London, $^{22}_{\text{Dec.18,'95}}$ reports a case in which chloroform was administered during six hours in a case of strychnia poisoning by hypodermatic injection, with recovery. The idea was suggested by H. C. Wood, of Philadelphia, in his address on "Anæsthesia" at the Berlin International Medical Congress in 1890.

In a case of poisoning by strychnine, reported by Masson and Worsley, of Ramsgate, Eng., $^{2}_{\text{Oct.13,'94}}$ chloroform was given in combination with apomorphine, with beneficial effect.

H. B. Oliver, of Memphis, Tenn., [74 June,'95] was called to a case in which it was evident that death was near at hand unless prompt relief were obtained, and $\frac{1}{6}$ grain (0.01 gramme) of pilocarpine hydrochlorate was given hypodermatically every three hours. The relief was prompt. The stomach was then washed with a solution of common salt, and chloral and veratrum viride were administered by the rectum. A speedy recovery ensued.

[H. C. Wood, of Philadelphia, [112 Dec.,'95] cautions against the use of the stomach-pump in strychnine poisoning, because of the danger of convulsions being excited by the effort to open the mouth and pass the tube.—C. S. W.]

Sulphonal.—Karl Hirsch [116 Jan.,'95] reports a case of acute poisoning in a young woman who had taken at one dose 25 grammes ($6\frac{1}{2}$ drachms) of sulphonal and who recovered in less than fifteen days. Sleep was so deep for two nights and two days that she could not be wakened; during the following four days there was an almost irresistible desire to sleep; the gastric symptoms were a coated tongue, a bad taste in the mouth, anorexia, and gastric pains.

Very persistent constipation was present, lasting five days. Symptoms of nephritis appeared the fourth day only and lasted but three days. Hæmatoporphyrinuria was never present; the depression of the heart was divided during the first few hours, but disappeared slowly in a few days. With reference to the nervous system, there was noted only a slight diminution of sensitiveness to pain in the lower limbs, a slight diminution of the reflexes during the first day, and nystagmus, which appeared the fifth day only and vanished after two days. Slight ocular disturbance was also present (obscured vision), which impeded reading.

Martheu [116 July,'95] reports that in a fatal case of sulphonal poisoning the kidneys were greatly congested and the epithelium of the tubuli contorti and the tubuli recti of Henle was affected. In opposition to what was observed by Stern, the diseased epithelial cells showed an irregular protoplasm which tended to become detached, while the necrosis of the nucleus was of secondary importance. Cases of acute poisoning with sulphonal were also reported by C. Birt, of Bombay, [2 Mar.30,'95] and W. Wright Hardwick. [6 July 20,'95] The latter observer's case was attended by arching of the feet, due to irritation of the plantar branches of the post-tibial nerve. The long period that elapsed before the toxic flexion of the soles made itself manifest tended to show the slowness of the action of the drug.

Tobacco.—Agia Ram, of Murree, [239 July 1,'95] in a case of acute

tobacco poisoning, gave about $2\frac{1}{2}$ minims (0.17 gramme) of liquor strychnine hypodermatically. The patient regained consciousness in about half an hour after the first dose, every sensation returned, and he was apparently well. After two hours he relapsed into his former condition ; the author repeated the dose of strychnine, which again relieved the patient. Complete recovery ensued.

ANÆSTHETICS.

By the Central Editorial Staff.

submitted for commentation to

DUDLEY BUXTON, M.D., B.S., M.R.C.P.,

Associate Editor,

LONDON.

Chloroform.

General Considerations.—Lauder Brunton, of London, [6] July 6,'95 in an elaborate and praiseworthy article, concludes that the practical rules for the administration of chloroform given by the Hyderabad Chloroform Commission are correct, this deduction being based upon the following conclusions: 1. Experiments on animals have conclusively shown that chloroform given by inhalation, and not blown artificially into the lungs, kills by paralyzing the respiration. 2. Clinical observation has shown that cases of simple danger without death during anæsthesia are due to failure of the respiration. 3. Cases of death may arise from the same cause, but may also be due to stoppage of the heart (syncope) or to stoppage of the heart and respiration together (neuroparalysis). 4. The most common causes of neuroparalysis have been found by Caspar to be throttling, strangling, and drowning, which kill by neuroparalysis as often as by asphyxia. 5. Anæsthetics have no tendency to produce neuroparalysis except when they are given in such a manner as to irritate the respiratory passages either mechanically or chemically. 6. On the contrary, they tend to lessen shock. 7. During imperfect anæsthesia, both at the very commencement of administration of an anæsthetic and during recovery from its influence, choking may occur and cause death by neuroparalysis as well as by asphyxia. 8. The neuroparalysis is the result which is most to be dreaded, as simple asphyxia may be usually recovered from if artificial respiration be maintained. It is, therefore, most important to avoid anything which is likely to interfere with respiration, as such interference may act like throttling and cause death by neuroparalysis. During complete anæsthesia, the reflexes being almost or entirely abolished, there is but little danger of neuroparalysis, but, the nerve-centres being weak,

there is more of asphyxia. At the commencement of administration and during recovery, when the reflexes are present, but may be deranged, the danger from neuroparalysis is greatest and the respiration then requires to be watched with especial care. Although there may be no objection to the anæsthetist keeping his finger on the temporal artery, and thus unconsciously watching the pulse, yet the respiration must be his main care, and anything that will withdraw his attention from it is studiously to be avoided.

[Lauder Brunton's conclusions as here given are in conformity with what has been taught since the time of Snow. His views, however, as expressed in the paper the abstract of which appears here, are at variance with those expressed by the Hyderabad Commission. Failure of respiration is, according to Colonel Lawrie, the only possible way for chloroform to kill. This appears to be too sweeping a statement. Very many observers have found the heart to fail before breathing ceases. It is urged that persistence of respiratory movement does not necessarily mean pulmonary ventilation; but this fact is known, and observers have expressly stated that air has been seen to enter and to leave the lungs for a perceptible time after all apparent circulation has ceased. It is, no doubt, true that most people who die under chloroform do so as a result of respiratory poisoning, the effect of overnarcotization of the medullary centres. The sudden deaths under chloroform, which occur less frequently and which Lauder Brunton, following Caspar's nomenclature, has classed as neuroparetic, are those which Lawrie, speaking at the special meeting summoned by the Royal Medical and Chirurgical Society to discuss the chloroform question, compared to the deaths resulting from shooting in the head. Victor Horsley demonstrated that death arose from shock to the medullary centres, and the great similarities between these modes of death led Lawrie to his conclusion. This is practically Lauder Brunton's view. That watching respiration at the commencement or termination of the chloroformization could lessen the peril seems to us unlikely. The respiration stops suddenly in these cases; it does not fail away; it stops because the nerve-cells are disorganized. The practical side of the question is the warning that a patient should not be allowed to inhale a high-percentage strength of an anæsthetic vapor. This applies to ether as well as to chloroform. A few deaths reported as having occurred from heart-failure under ether have certainly been instances of neuroparalysis. The breath is held as long as possible; the fixation in inspiration of the thorax taxes the distended heart, while the carbon-laden blood depresses the vitality of the nerve-cells. At length the respiratory centre is so affected by the state of the blood

flowing through it that rapid and deep inspirations follow the expiration, and during these a dose of the anæsthetic is taken in sufficient quantity to lull once and forever the activity of the respiratory and cardiac centres. Chloroform being a more powerful protoplasm poison than ether, it is more likely to bring about this result. In considering the question whether or not the pulse should be watched, it is important to bear in mind that a patient whilst under an anæstlietic is subjected to two perils,—the stress of the operation and the effect of the anæsthetic. The pulse gives the anæsthetist valuable aid about both these perils, and on this account it is a mistake to teach that the pulse should be neglected. It is equally a mistake to keep the finger on the pulse throughout. The best guide as to the state of the circulation is the color of the patient's skin and mucous membranes, and this should be constantly watched. The pulse tells us the tension in the arteries and so gives a further valuable guide. In several of the deaths recorded here this guide must have been neglected and chloroform given to persons whose blood-pressure, even before the anæsthetic was administered, was very low. Such persons should be given ether.—D. B.]

The literature of the year does not seem to have sustained the practical deductions based upon the labors of either the Hyderabad Commission or Lauder Brunton. Indeed, the mortality list has distinctly shown that to overlook the condition of the circulation, or even to grant but an unconscious attention to the condition of the pulse, is to overlook the first danger-signal in a large proportion of the cases. Among the instances in which the heart gave the first indication of peril the following may be mentioned: A man of 43 years, $^{6}_{\text{Mar.2,'95}}$ anæsthetized for introduction of a catheter; the pulse was first to fail, the respiration continuing regular for two minutes, when it grew slow and labored and finally ceased. A prematurely old man, $^{36}_{\text{Jan.,'95}}$ who took chloroform preparatory to the amputation of a leg. The pulse suddenly became imperceptible, the breathing, however, continuing normally. Ether being injected, the patient rallied and the chloroform was resumed, when the pulse again stopped, and with it the respiration. A girl, aged 10 years, $^{2}_{\text{Apr.22,'95}}$ from whom enlarged cervical glands were about to be removed; the pulse suddenly ceased, but the respiration continued a few moments. Efforts at resuscitation caused the respiration to return momentarily, but the pulse was never felt again. A girl, aged 15 years, $^{2}_{\text{Apr.13,'95}}$ anæsthetized for the removal of a necrosed bone; the pupils suddenly dilated, the pulse could not be felt, although respiration continued for awhile; the pupils were caused to temporarily contract by drawing the head

over the end of the table. A man of 47 years $_{\text{Oct.12,'95}}^{2}$ was given chloroform for the removal of necrosed bone from the hand, when after a tonic spasm the heart stopped, air entering the lungs freely and continuing to do so while artificial respiration was maintained. The heart, however, never resumed its pulsations. A girl, aged 14 years, $_{\text{Oct.5,'95}}^{6}$ suffering from tuberculous glands of the neck, was about to undergo curetting of a sinus, when, after 2 drachms (8 grammes) of chloroform had been given, the pulse flagged and became imperceptible. Respiratory movements were noticed after the pulse had failed.

George Johnson $_{\text{Dec.15,'94}}^{6}$ witnessed several cases of embolism in the pulmonary artery in which extreme dyspnœa was a prominent symptom. In one of the cases mentioned, except over a patch of pulmonary apoplexy in the right middle lobe, the air was heard freely entering the lungs, showing that through cardiac failure or arterial obstruction the violent respiratory efforts were but responses to a demand for air from the nervous centres,—the physiological opposite to the apnœa which results from hyperoxygenation of the blood. The author, among other cases, quotes Ballard's, $_{\text{Nov.24,'94}}^{6}$ of Ashton-under-Lyne, in which the pulse suddenly became imperceptible; the patient then took four deep respirations and the breathing ceased. There evidently was a primary failure of the circulation, for nitrite of amyl on lint, placed over the mouth and nose while artificial respiration was performed, had an almost instantaneous effect in restoring first the circulation and then the respiration. In a case described $_{\text{Dec.1,'94}}^{6}$ in an annotation the patient was at a dentist's; before the dental work had been begun she suddenly became ashy pale, the heart's action ceased, but the respiration continued for several minutes. All efforts, which were continued for two hours, failed to restore life. In this case the necropsy showed that the right side of the heart contained no more blood than the left, showing that death was a result of arrested circulation, and not of apnœa.

Still, an editorial writer $_{\text{Mar.15,'95}}^{80}$ states that "clinicians have no right to report a case of death under chloroform as resulting from cardiac failure simply because the radial pulse is lost or the cardiac sounds cannot be heard," such reports leading to erroneous conclusions. Alluding to a case in which a clinician had reported a case of death under chloroform, $_{\text{Jan.,'95}}^{36}$ the editorial writer describes one of his own in which the patient suddenly became pulseless at the wrist and at the temporal artery under chloroform, in whom the respirations continued. Had death resulted in this case, it would probably, he states, have been reported as a death from cardiac failure under this drug; but it so happened that, as

the operation was upon the abdominal contents, the operator inserted his hand into the abdominal cavity and, on feeling the aorta, found that blood-vessel pulsating quite strongly, and, by continuing the pressure, the patient, who was given the advantage of other modes of relief, speedily rallied.

[The difficulty of arriving at an accurate judgment upon the cause of death in reported cases is very great. The reports are seldom accurate, being too often lay notes taken at the public investigation of the case in the coroner's court, when the inquiry is mainly directed to ascertain that the patient was not murdered by intent or gross carelessness. It may, however, be useful to consider the possible cause of death in the cases quoted. The first, from heart-failure, seems to be an instance of incomplete narcosis in which the peripheral irritation of the introduction of the catheter causes syncope, as it often does when no chloroform is given. But, as chloroform was given, the circulation failed completely, owing to the effect of the anæsthetic upon the nervous centres. Such deaths rarely, if ever, occur under ether. The second case is very remarkable, and, if accurately observed, would completely prove primary heart-failure. The two next cases appear due to overdose, but it is not clear whether it resulted from excessive intake or deficient elimination.

The interesting case referred to by the editorial writer corresponds to observations made by Oliver and the author with Oliver's arteriometer. During abdominal operations, even where the patients were profoundly (see $\frac{2170}{'95}$) under chloroform, the arteriometer recorded an almost complete collapse of the radial artery during traction on the omentum, handling and manipulation of the intestine or other viscera. This would appear to be much less marked under ether. Whether these phenomena are to be understood to mean that the blood-pressure is lowered by lessened peripheral resistance in the capillary areas or not is at present impossible to say. It certainly appears plain that death under chloroform occurs under two very different conditions. In the one case peripheral resistance is so accentuated by the asphyxial state that the right heart becomes unable to empty itself, while in the other dilatation of the capillary areas leads to failure of circulation from want of "stop-cock" action.—D. B.]

Alexander Wilson, of Manchester, $\frac{6}{\text{Nov. 17, '94}}$ states that chloroform may cause death in at least two ways: 1. By gradual primary respiratory paralysis, in which case the fatal termination is progressive, warning is given of the impending result, and with treatment the chances of recovery are good. These form the majority of the cases of chloroform accidents which end in recovery. 2.

Death may occur from primary failure of the circulation. In these cases the onset is sudden, the pulse gives the first warning of danger, respiratory movements continue after the pulse is imperceptible, and a fatal termination is the rule. The majority of fatal chloroform accidents no doubt belong to this class.

Effects on the Heart and Circulation.—Bedford Brown, of Alexandria, Va., [80] Dec. 15, '94 was able to study the action of chloroform on the circulation of the brain in two cases in which extensive injuries of the cranium and the meninges had exposed large areas of the organ proper. Both patients requiring anæsthesia and prolonged surgical measures, the influence of the anæsthetic and of stimulants rendered necessary by periods of threatening collapse, the study could be conducted with deliberation. The facts elicited were that, beyond a doubt, the action of chloroform was to reduce the cerebral circulation. In one of the cases the local hæmorrhage was severe. As soon as the patient was fully under the influence of the anæsthetic the hæmorrhage subsided, the rhythmic pulsations of the brain ceased, the exposed surface of the brain lost its florid complexion and assumed a decidedly pale and ashy appearance, which the author compares to that of the lips and prolabia, and considers reliable indices of the cerebral circulation. At the same time the respiration became slow,—auscultation showing that air did not reach the bases when respiratory failures threatened,—the cardiac impulse feeble, and the pupil contracted. Briefly, the cerebral circulation became reduced in volume in proportion to the degree of anæsthesia obtained. On the contrary, when the effects of anæsthesia would begin to subside, then hæmorrhage, at first slowly, would begin to return, the cerebral pulsations begin to reappear, and the organ would again assume a florid appearance, with indications of returning turgescence. These peculiar phenomena recurred as many as four different times in this case during the operation, and indicate that death from chloroform does not result from congestion, but from anæmia, of the brain. Under the effects of mental excitement and muscular exertion the cerebral pulsations became not only forcible, but exceedingly irregular, and there was always ominous irregularity of the respiratory and cardiac action in corresponding degree.

The influence of the force of gravity on the circulation of the blood was studied by Leonard Hill. [178] May 20, '95 He considers this force as a cardinal factor, compensation for hydrostatic effects of gravity in changes of position being ascribed to the splanchnic vasomotor mechanism. Compensation varies in different animals, being most complete in upright animals and man; when the splanchnic vasoconstrictors are paralyzed by injury or poisons, such as chloroform,

the influence of gravity becomes of vital importance, the feet-down position being dangerous from dilatation and filling of the abdominal veins, with a corresponding emptying of the heart, and the cessation of the cerebral circulation. While the heart is normal, the syncope due to the feet-down position is abolished by the horizontal or feet-up position, or by firm pressure upon the abdominal veins, as by bandaging of the abdomen ; but if the heart is affected, as by chloroform poisoning, the restoration of pressure is incomplete, and the heart may be stopped altogether by the inrush of a large quantity of blood. Vagous inhibition and cardiac acceleration are subsidiary compensatory mechanisms ; chloroform rapidly paralyzes the vasomotor mechanism and damages the heart, but ether does so only very slowly and when pushed deeply. The vasomotor paralysis induced by chloroform persists for some time after removal of the anæsthetic, but can be compensated for by compression or elevation of the abdomen.

The "dental position"—*i.e.*, that employed by dentists for the removal of teeth—has caused a number of deaths by sudden cessation of the heart's action under conditions that would tend to confirm the views of Hill.

Commenting upon such fatalities, Henry Sewill, $^{66}_{\text{Dec.8,'94}}$ of London, emphatically affirms that the cases of dental operation in which chloroform or ether can be considered indispensable are so rare that practically it may be said the use of these always dangerous agents in ordinary dental surgery is unjustifiable. Nitrous-oxide gas is *par excellence* the dental anæsthetic. The cases in which it does not in every way suffice are highly exceptional, and much more can be done with it than seems commonly supposed. In the few instances in which a large number of teeth need to be extracted—teeth beyond the reach of conservative treatment, which nowadays is able to save so many—it is, as a rule, not necessary to remove all at one sitting. There is, moreover, no difficulty in giving gas on one occasion repeatedly, or at least two or three times in rapid succession. In many cases a few teeth or stumps having been drawn and the effect of the anæsthetic passing off, the inhaler can be re-applied, anæsthesia again induced, and more extractions can be performed without the patient regaining consciousness. In cases where the jaws are closed in consequence of inflammation extending from around molars or "impacted" wisdom-teeth, and gas anæsthesia would not afford time to force the jaws apart and remove the offending teeth, the operation may be divided into two parts. The mouth may first be opened by the screw-gag, and then the gas may be given again for the extraction. In most cases the second administration may

be begun before the effect of the first has entirely passed off, and the patient may be as effectually spared both terror and pain as with any other agent. In the very few dental cases where chloroform is really called for it ought never to be given in a chair. The patient should always be recumbent, undressed, and prepared in the way usual when surgical operations are contemplated. The patient may recline on an ordinary couch, with the shoulders raised on pillows and the head thrown slightly back, the dentist standing either on the patient's right or behind the head. In one or other of these positions the operator can conveniently deal with any tooth in either jaw.

An editorial writer $_{\text{Nov.10,'94}}^{6}$ alludes to the commonly observed fact that vomiting after anæsthetization is associated with a severe degree of circulatory depression and not infrequently with actual syncope. The following cases vividly sustain this point. A boy, 14 years old, $_{\text{Feb.15,'95}}^{267}$ who had safely taken anæsthetics several times before, was given chloroform prior to a slight operation upon the eyelids. He took the anæsthetic quietly and the operation was performed without interruption. During the insertion of the last stitches he vomited; his pulse then began to fail and ceased to be felt at the wrist three or four minutes after the administration of the anæsthetic had ceased. The breathing, nevertheless, continued normal for some time. At the autopsy all the organs were found healthy with the exception of some evidence of old pleurisy and some enlargement of the spleen. The heart was moderately empty; the muscle-tissue and valves quite normal. The brain was anæmic. Briefly, the pulse remained regular, firm, and full as long as anæsthesia was complete, and it continued good after partial recovery and until after the act of vomiting. The pulse then failed rather suddenly, while breathing continued normal and became gasping as cyanosis advanced. A girl $_{\text{Oct.1,'95}}^{557}$ was placed under chloroform for the excision of a ganglion of the wrist. When the operation was over and the anæsthetic discontinued, she began to move and vomited a little bile-stained mucus; a second or two later she became slightly cyanosed. Although still breathing naturally, the pulse could not be felt and in a minute or two breathing also ceased. No autopsy was allowed.

In close connection with cardiac syncope is the element of fear. The difference in this particular between Europeans and Hindoos was emphasized by John Smyth, of Madras. $_{\text{Oct.26,'95}}^{2}$ White $_{\text{Apr.20,'95}}^{2}$ also considers fear a very important factor,—one, indeed, capable of inducing a fatal issue when a very small amount of the anæsthetic has been inhaled.

M. A. Guérin, of Paris, $_{\text{Oct.10,'94}}^{3}$ stated that death from arrest of

the heart might be prevented in chloroform anæsthesia by having the patient inhale the chloroform only by the mouth. In death from arrest of the heart the cardiac muscular fibres cease to contract under the influence of a nasal nerve-reflex, which causes inhibition of the heart through the medium of the pneumogastric. If a rabbit be made to inhale chloroform through the trachea after tracheotomy, the heart is in no way affected; if, however, the animal be made to inhale it through the nose, the heart is arrested; for, as the trachea has been cut transversely, the chloroform inhaled by the nose cannot pass the bronchi. It is, therefore, plain that the anæsthetic acts upon the heart-movements only through the nasal nerves and the cardiac nerves of the pneumogastric, the former by a reflex action reacting upon the latter. In administering chloroform, therefore, its action upon the nasal nerves should be prevented by pressing the nose of the patient between the fingers of the hand holding the compress until anæsthesia be produced, when the nasal fossæ, being anæsthetized also, will have no reflex action.

In this connection, Rosenberg, of Berlin, [4] Jan.9,'95 proposed what he erroneously called a new method for the production of anæsthesia,—namely, the application to the nasal mucous membrane, before commencing the administration of the anæsthetic, of a 10-per-cent. solution of cocaine, repeated every half-hour during long operations, and at the end of each operation, no matter how short the latter may be. He bases his views upon the following conclusions: 1. Excluding cases of negligence and of poisoning, cardiac syncope in chloroform narcosis is, in so far as it can be, attributed to the chloroform reflex. 2. The syncope and the accompanying irritation of the peripheral trigeminal filaments in the nasal mucous membrane. 3. Every anæsthetic inhaled produces the same reflex symptoms as chloroform. 4. By proper cocainization of the nasal mucous membrane, all such reflexes can be entirely prevented.

Gutmann, of Berlin, [22] Jan.30,'95 speaks highly of the use of cocaine in the manner described, the stage of excitement having been avoided in six of his cases. Dührssen, [3] Jan.15,'95 who used it in eighteen cases of laparotomy, attributes its advantages, however, to the drop method of administering the chloroform. Robertson, of London, [2] Jan.,'95 finds it especially advantageous for the removal of adenoid vegetations and tonsils, the sleep being much more quiet than is usually the case. Cocaine used locally for the same purpose was already recommended by Laborde, of Paris, five years ago. [10] June 10, 17,'90

Alexander Haig, of London, [6] Feb.23,'95 alluding to the influence of chloroform upon the blood-pressure, and especially to the fact that

as the effects of the anæsthetic are passing off a rise succeeds the fall induced by the drug, states that, the greater and the more sudden the rise and the weaker the heart, the greater will be the danger. Several cases are quoted to illustrate the point. Experiments by R. Kirk $\frac{6}{\text{Aug.19,'93}}$ had already shown that irregularity of the heart and tendency to syncope are met with in animals after the last drop of chloroform has left the blood; and this author has further pointed out that in the human subject these troubles often occur during a break in the administration or soon after it has been discontinued, a sudden quickening of the pulse being looked upon by him as a danger.

According to J. H. Marsh, of Macclesfield, $\frac{6}{\text{Dec.7,'95}}$ Gaskell and Shore maintain that the effect of chloroform upon the vasomotor centre is one of stimulation, while simultaneously exerting a depressing influence directly on the heart. As the result of some recent observations the author has been making on the pulse-tension of patients under chloroform, he has come to the conclusion that one of the earliest effects of an overdose of the anæsthetic is arterio-capillary contraction. The vessels, by thus contracting, seem to exert a kind of stop-cock action in order to prevent the blood, dangerously loaded with chloroform, from reaching the tissues. At the same time the heart is directly depressed and tends to yield to the peripheral resistance. This condition of virtual high pulse-tension lasts only for a brief period, but that it does exist is proved by numerous sphygmographic tracings; it is quickly succeeded by a rapid fall of blood-pressure. The heart itself, depressed by the anæsthetic, has not sufficient power to go through its systole in the face of the resistance in front.

[The variations in the circulation under chloroform are due not only to the various factors to which reference has been made in the abstracts already given, but also to alterations effected by chloroform in the central nervous system and local nervous mechanisms, as well as the conducting filaments of nerves connecting these mutually one with another. Waller's researches on the effects of anæsthetics upon isolated nerves have demonstrated that their electrical reaction is profoundly altered by anæsthetics. There is a distinct danger from chloroform in conditions of nerve-prostration and post-influenzal neurasthenia, to which I have drawn attention elsewhere. The whole question of reflex inhibition of the heart under chloroform bristles with difficulties. It cannot be simply an effect of fear in persons imperfectly protected by the chloroform, since such cases would, if that supposition held true, occur even more often under ether, as that substance, when given badly, produces more terror, breath-holding, and struggling

than does chloroform. And yet ether seldom, if ever, kills in this way. Unquestionably chloroform, whether through its poisonous effects on protoplasm or in some other way, exerts some deleterious influence on the tissues of the patients which renders them less able to withstand any unusual strain imposed upon them,—*e.g.*, as the circulatory failure associated with vomiting, lowered blood-pressure from posture, fear, etc.—D. B.]

Lungs and Respiration.—Wm. Hardmann, of Blackpool, [2 Jan.12,'95] emphasizes the importance of great caution in the administration of chloroform in all asphyxial conditions. The mortality-list shows the value of this recommendation. It finds itself further sustained by the paralyzing influence of chloroform upon the respiratory centres, which plays a more or less important part in all untoward cases. A number of fatalities due to asphyxia were caused by empyema and kindred disorders, which mechanically assisted the central respiratory paralysis by limiting the amount of air inhaled.

An editorial writer [6 Nov.,'94] states that the safest plan to adopt, when for any reason chloroform is selected in such cases, is to anæsthetize the patient very lightly and to avoid anything like profound narcosis. Guermonprez, of Lille, [220 May 4,'95] reported a case showing what timely evacuation of the contents of the pleura will do in such cases. As soon as evidences of asphyxia showed themselves he divided the skin with one cut of the bistoury and instantly opened the pleura freely, three quarts (litres) of pus being thus rapidly evacuated. His almost moribund patient quickly returned to life, indicating that the mechanical impediment had been the source of danger.

J. G. Clark, of Baltimore, [764 May,June,'95] reported a case of death in a colored woman of 47 years, in whom he had found it impossible to induce artificial respiration on account of a rigid thorax and adherent abdominal viscera. The thorax was long and contracted at the waist and the sternum prominent,—"pigeon-breasted." The costal respiratory movements were limited. The right lung was bound down to the parietal pleura throughout its entire extent by firm adhesions. The abdominal viscera were firmly adherent to the parietal peritoneum; the large and small intestines, omentum, and stomach were matted together by firm adhesions and the liver was very firmly adherent to the diaphragm.

Kidneys and Renal Functions.—D. Eisendrath, [301 B.40,H.5,6,'95] while studying the action of chloroform and of ether on the kidneys, examined, before the operation and during the three days following the latter, 70 individuals operated upon under chloroform and 60 under ether. The results of his personal observations

and the researches published in the literature lead the author to formulate the following conclusions: 1. A pre-existing albuminuria is exaggerated to a greater extent by ether than by chloroform. 2. Albuminuria appears more frequently after chloroform than after ether; the proportion between chloroform albuminuria and that following ether narcosis is of 32 to 25. 3. Chloroform and ether act in the same way upon the amyloid kidney. 4. Cylindruria, with or without albuminuria, is as frequent after chloroform as after ether, but disappears more rapidly when the operation has been performed under ether.

Von Friedländer $\frac{22}{\text{Oct.2,'95}}$ examined the urine of 100 men before and after chloroform narcosis. Of 42 cases in which before the anæsthetic the urine was perfectly normal 36 showed a transient, but undoubted, albuminuria. Neither the age of the patient nor the duration of the period of anæsthesia had an influence on the quantity of albumin. Of 33 cases in which, by Spiegler's test, serum-albumin was present before the inhalation, the albumin was the same in 22 both before and afterward, in 9 there was a slight increase with albumin, in 7 the albumin diminished or disappeared altogether. Forty-five cases showed the appearance or increase of albumin after anæsthesia, and in 17 of these the urinary sediments showed that the kidneys were implicated. Casts appeared mostly in the early form after anæsthesia, but never in such quantities as in acute nephritis; usually only a few were met with, mostly hyaline, more rarely granular, only exceptionally cell-cylinders, and equally rarely kidney-epithelium, more frequently cell-fragments the nature of which could not be exactly determined. If the appearance of albumin in the urine after chloroform anæsthesia could in some cases be otherwise explained, the author believes that in the majority it can only be caused by the injurious effect of the chloroform on the kidney itself, rendering the tissues permeable to serum-albumin. The alteration in the kidney was generally transient and found expression in the albuminuria only.

Kast and Mester $\frac{114}{\text{v.18,'95}}$ state that after prolonged chloroform narcosis, in healthy individuals, a continued disturbance in the metabolism of albuminous substances occurs, similar to those induced by phosphorous poisoning, and may develop a sulphur-containing substance capable of being excreted considerably.

Wunderlich $\frac{761}{\text{v.11,No.2,'95}}$; $\frac{814}{\text{June 1}}$ examined chemically and microscopically the urine of one hundred and twenty-five patients both before and after narcosis, and concludes (1) that a previously-existing albuminuria is often increased by ether narcosis; (2) that albuminuria may be produced by chloroform less frequently than by

ether, but this disappears in one or two days after the operation unless some complication appears; (3) that casts are produced by chloroform less frequently than by ether; (4) that if casts are present before the operation they will be increased in number in most of the cases by both methods of narcosis. Albuminuria following ether or chloroform narcosis is produced by an ischæmia of the kidneys through a diminution of blood-pressure. Casts result from the specific narcotic influence of ether and chloroform upon the epithelial cells of the convoluted tubules.

Allessandri [19] June 8,'95 draws attention to the fact that, while in most cases the effects of chloroform on the kidneys are practically *nil*, in patients with renal affections this condition of perfect safety cannot be said to exist. The author therefore urges the necessity of carefully observing the urinary secretions for one or two days before the administration of chloroform. When renal lesions are present chloroform should be either avoided or given with the greatest caution.

An editorial writer [80] Mar.15,'95 concludes that both scientific investigation and clinical experience still further emphasize the fact that the presence of renal disease very greatly increases the danger of administering anæsthetics, and that no surgeon who has an opportunity to decide as to the wisdom of performing an operation, and the time at which it is to be performed, should think of undertaking such procedures until after the urine has been carefully examined on a number of successive days. The truth of the matter seems to be that both ether and chloroform possess the power of distinctly irritating the kidneys, but it also seems to be true that, as chloroform acts as an anæsthetic in very small quantities, it is ever to be the anæsthetic of election where operative procedures are demanded in the face of renal complications.

Becker, of Bonn, [20] v.140,No.1 investigated the question as to whether or not narcosis can lead to the production of acetone in healthy persons. He therefore examined the urine of the patients anæsthetized in the surgical clinic of the university for sugar, albumin, and acetone, before and after narcosis. He found that in the majority of healthy persons there arises an acetonuria of varying duration after narcosis. The following table will give a bird's-eye view of his results:—

Anæsthetic.	Number of Patients.	Positive.	Negative.
Ether,	195	132	63
Bromether,	16	7	9
Chloroform,	5	5	0
Ether followed by chloroform,	33	22	11
Bromether followed by ether,	2	1	1
	251	167	84

The duration of the narcosis did not seem to have any influence on the occurrence of the acetonuria; the same is also true as regards the nature of the disease and of the operation—whether bloody or not; in children acetonuria seemed to be more frequent and also more marked than in adults. As a rule, the acetonuria disappeared on the second, third, or fourth day, but in some instances it continued for eight or nine days. In a case of perineal section it was possible to show that twenty minutes after the beginning of the anæsthesia the urine already contained acetone, having previously been free from this substance.

Baxter [19] calls attention to the fact that the administration of chloroform is dangerous even when there is but a slight degree of diabetes present, and that it is impossible to predict whether coma will occur. In 12 fatal cases, 3 of which were his own, coma did not develop until the chloroform narcosis had passed off, in one to two days. The patients then became indifferent, stupid, and confused, and finally lost consciousness; urine and fæces were then passed involuntarily, and they perished in coma.

[The researches given above are very important. They appear to show that in pre-existing albuminuria, ether and chloroform are equally liable to produce an increase in the albumin eliminated, while the latter anæsthetic is more prone than ether to start catarrhal albuminuria. It is probably not good advice to recommend chloroform in preference to ether in cases of kidney disease, for, although it is true that less chloroform is required to obtain and prolong anæsthesia, yet the anæsthetic is more difficult to eliminate, and so exercises a more profoundly deleterious influence on the epithelial protoplasm and for a longer time than does ether, since this latter body is rapidly eliminated by the lungs. This remark only holds when ether is given, as I believe it should always be given, from an inhaler and a minimal quantity employed. The catarrhal nephritis often imputed to ether arises in cases of very prolonged operation, wherein a very large quantity of the anæsthetic had been employed. It is very noticeable that but few instances of suppression of urine have been, when investigated, proved to have followed ether even when the kidneys have been diseased. The influence of operation independently of the anæsthetic upon the production of alterations in renal excretion has to be eliminated before we can pretend to understand the true influence of the anæsthetics themselves.—D. B.]

Digestive System.—Guinard, of Lyons, [67] made some experimental researches upon anæsthesia, which demonstrated that it is dangerous to induce general anæsthesia in patients very much run down, more or less in a state of collapse, and suffering from

abdominal disease. Any irritation of the intestine may cause, by reflex action, the arrest of respiration. In such cases the use of chloroform is attended with much greater risk than is ether.

[On the other hand, it must be admitted that operations performed upon anæsthetized patients, even though the latter are collapsed, are apt to induce fatal syncope. Many believe, and I think justly, that anæsthesia produced by a general agent acts protectively in these cases. A consideration of the records of deaths under anæsthetics shows that many occur in abdominal cases when operations upon the intestines are in progress. Possibly such deaths are reflex, although one is a little inclined to avoid so vague a term, or possibly they arise from progressive collapse; in other words, the patients were dying as the anæsthetic was commenced, and died coincidently with the opening of the abdomen. Many deaths arise from vomiting, in these cases, during incomplete narcosis. There certainly is enhanced danger in an incomplete narcosis.—D. B.]

Miscellaneous.

Chloroform Anæsthesia in Children and in the Aged.—Edmund Owen, of London, $\frac{51}{\text{Mar.,'95}}$ in an article upon this subject, remarks that familiarity has bred a certain amount of contempt on the part of the casual administrator, and that "every newly-qualified man, whether he has had instruction in the subject or not, deems himself competent to get and keep a child under chloroform anæsthesia." The author emphasizes the fact that there is always risk in giving chloroform or any other anæsthetic to a child, but that this risk is diminished in proportion as the vapor is administered in a careful manner and by a well-instructed person.

That the general impression that children very rarely succumb to the influence of chloroform administered as an anæsthetic is erroneous is demonstrated by the many deaths published during the year in children ranging from early infancy to 15 years.

W. L. Heath, of London, $\frac{6}{\text{Oct.27,'94}}$ administered chloroform to a woman, 94 years of age, to reduce a dislocation. She bore the anæsthetic calmly and easily, thus supporting the opinion that chloroform, if carefully administered, may be given with perfect safety to some patients of even very advanced years.

Chloroform During Sleep.—Instances are reported by O. A. McKimmie and E. Oliver Belt $\frac{1172}{\text{Dec.,'94}}$ in which chloroform was administered to children and operations performed during sleep. In Belt's case the patient was only 18 months of age and blind from cataract. Chloroform administered during sleep enabled the operator to easily perform the needle operation without waking or disturbing the child.

Chloroform and Illuminating Gas.—Charles G. Lee, of Liverpool, [187 July,'95] states that a coal-gas flame in an ill-ventilated room and a somewhat prolonged exhibition of chloroform may, by forming a compound with the latter, induce serious symptoms not only in the patient, but in the surgeon and his assistants likewise. These were in the latter a tickling of the throat, almost immediately followed by the spasmodic cough, so severe in its nature that, had they not been able to complete the operation in five minutes or so after its onset, they would have had to postpone it. In a case occurring on board ship the patient participated in the toxic effects and the severity of his cough was so great as to almost throw him off the operation-table, and obliged the surgeons to defer the completion of the operation. Paterson, of Cardiff, [15 v.42] who gave an account of almost identical effects occurring to him, experimentally satisfied himself that carbon oxychloride, or phosgene, discovered by Sir Humphry Davy, was probably the cause. Carter, of Liverpool, having suggested that hydrochloric acid might be the cause of the symptoms, the irritating area was found to redden blue litmus. Rehn, of Frankfort, [14 May 12,'95] also gave warning against the use of chloroform near a gaslight, as ethylene-chloride is formed. In tabetic patients fatal coma may be induced.

[This inconvenience or even danger is partly met by using a chloroform-inhaler, which does not require the evaporation of a large quantity into the room. Junker's, as modified, answers well. Chloroform should never be given from a towel, cone, or lint in the presence of illuminating gas. The trouble is worse in foggy or wet weather.—D. B.]

Signs of Danger.—According to Arthur H. Ward, [222 Sept.,'95] any material dilatation of the pupils means either that the patient is coming round—in which case the pupil is active and other reflexes, vomiting or movements, will follow—or that the patient is getting too far under, as shown by stertorous breathing, sluggish pupil, and fixed eyeballs. In the first case more chloroform is indicated; in the second it is to be withheld till contraction recurs, in consequence of the recovery of the third nerve-centre.

White [2 Apr.20,'95] also states that the degree of narcotism present may to a great degree be determined and many sources of danger can thus be avoided. In the initial stage the pupil is somewhat dilated, and in passing to the second it oscillates between dilatation and contraction, finally becoming decreased almost to a pin's point. The palpebral and ocular reflexes then disappear. His observations on the pupils in sleep showed that the same changes occur as in narcotism by chloroform. In the latter stage, however, pupillary dilatation occurs, and this, with a fixed eyeball,

heralds danger. Of course, the fact that warnings of approaching danger may be gathered from the rapid enfeeblement and flickering of the pulse and alteration in respiration are of equal importance is not overlooked. Indeed, he enjoins watching the breathing, the pupil, and the pulse.

Richard Gill, of London, [61 June 8,'95] states that when the breathing assumes the automatic character, indicating that the patient is unconscious, the amount of chloroform given should be regulated by the size of the pupil, the small, contracted, pin-point pupil being unquestionably the safest sign to trust. The large pupil may mean narcosis. The sign is especially of value, because, while the respiration may become imperceptibly labored and its modified character escape detection, the pupil slowly dilates, indicating that the extreme limit of anæsthesia has been exceeded.

Arthur Neve, of Kashmir, India, [2 Feb.2,'95] states that, although since 1875 there have been upward of six thousand administrations of chloroform without a single direct or indirect death in the Kashmir Mission Hospital, not a year passed without instances of dangerous symptoms due to one or the other of the following causes: 1. Primary syncope from fear. 2. Laryngeal spasm. 3. Secondary syncope from shock due to insufficient chloroform, and also from a proper dose acting on non-oxygenated nerve-centres. 4. Tertiary (sometimes secondary) syncope connected with vomiting. 5. Apnœa from (*a*) mechanical causes, (*b*) spasm of the larynx, (*c*) the toxic action of an overdose (relative or absolute) on the nervous centres. As is well known, ether is not available for all practical purposes in India.

Sequelæ.

Paralysis.—Vautrin, of Nancy, [31 Aug.31,'95] in relating three personal cases of paralysis following chloroform anæsthesia, recalls similar observations published in Germany by Budinger, establishing the frequent occurrence of paralysis of the brachial plexus, its coincidence with various ocular disturbances, and the peripheral and mechanical origin of the accidents, though in some few cases the origin is central. When the paralysis is limited to certain groups of muscles it is almost certainly peripheral. In cases of central origin concomitant symptoms are observed in the cranial nerves and lower extremities. Ocular phenomena, stricture of the palpebral fissure, myosis, and retraction of the globe are dependent upon peripheral paralysis due to compression and distension of the brachial plexus, followed by traction on the sympathetic.

Gross, of Nancy, [31 Aug.31,'95] makes a clear distinction between paralysis mechanically produced by direct action upon the nerve-

fascia and paralysis after chloroform narcosis properly speaking. The latter depend upon several factors, and particularly upon the previous state of health, and the struggles of the patient during the period of excitation. This last agent appears to be of considerable importance and capable of directly causing disturbance of the cerebral circulation. A patient operated on at Strassburg for strangulated hernia developed hemiplegia in the evening and died. At the autopsy an apoplectic area was found in the brain, in the production of which the struggles of the patient during chloroformization had evidently not been without influence. In another case of death after chloroform cerebral emboli were found.

Placzek $^{31}_{\text{Mar.27,'95}}$ described the case of an hysterical woman, 40 years of age, who underwent laparotomy for salpingitis. The hysteria persisted. Soon after the anæsthesia she complained of pain in the left arm; the muscles of the thumb and the interosseous muscles diminished in size; there was a partial loss of electrical excitability and the reaction of degeneration was noted, —all due to a bad position of the arm during chloroformization.

Franke, of Elberfeld, $^{164}_{\text{July 17,'95}}$ reported the case of a girl, 19 years of age, who, in coming out of narcosis after laparotomy, presented complete paralysis of the right arm, which was still present three months afterward. Only a few movements of the fingers were possible and the external surface of the arm showed anæsthesia. The faradic reaction of the muscles remained normal. Post-chloroformic paralyses are generally considered due to compression of the brachial plexus by the head of the humerus.

F. Krumm $^{404}_{\text{Dec.,'95}}$ has observed five cases of paralysis following chloroform, and divides such paralysis into peripheral and central, according as there is mechanical compression of the brachial plexus or a lesion of the central nervous system. In the former the prognosis is not grave, although recovery may be slow. Electricity, massage, and passive movements are indicated.

Bruns $^{25}_{\text{Nov.,'95}}$; $^{2}_{\text{Jan.25,'96}}$ reports a case of musculo-spiral paralysis from pressure during chloroform narcosis. The operation (for uterine fibroid) lasted several hours, and the patient's arm was pressed against an iron bar. Paralysis of the right arm was noticed directly after the operation; eleven days later all the muscles supplied by the musculo-spiral nerve, except the triceps, were found to be paralyzed; sensation was then normal. Seven weeks after the operation the paralysis remained, and there was slight alteration of electrical reactions, but four weeks later the muscles had recovered their normal power. Several similar cases have been reported. The paralysis is usually unilateral and generally right-sided, and affects especially the upper part of the brachial

plexus; so that the deltoid, biceps, coraco-brachialis, supinator longus, and infra-spinatus are paralyzed; occasionally the lower part of the plexus is affected. In these cases the lesion is probably due to compression of the plexus between the clavicle and first rib, which occurs in certain positions of the arm, and is, therefore, commonest in laparotomies where the operator stands at the side and the arm is pulled up to be out of his way.

[I believe that almost every case of paralysis following an operation under an anæsthetic arises from (1) mechanical pressure on nerve-trunks; (2) hysterical paresis. Certainly a large number of cases arise from the arms or thighs being unduly compressed by the edges of the table or bed, Clover's crutch, etc.—D. B.]

Cerebral Apoplexy.—E. Senger, [69] Sept.13,'94 in the course of an amputation of the breast in a woman 56 years old, noticed that suddenly the face became pale, the eyes fixed and expressionless, the pupils dilated and reactionless, the respiration shallow and gasping, and the pulse imperceptible. Under the influence of artificial respiration, cold affusions on the chest, etc., respiration was re-established, the heart began to beat, and the operation was terminated without accident. On awakening a typical hemiplegia was noted, with slight aphasia and facial paralysis. The two latter disappeared, but the hemiplegia persisted definitely, the lower limb being more markedly affected than the upper. The author asks whether this accident is not more frequent than is supposed, and whether many cases of so-called death from chloroform are not sometimes produced by cerebral hæmorrhage.

H. E. Tuley [61] Apr.13,'95 observed a case of tachycardia complicating chloroform anæsthesia. The patient was 30 years of age, robust, and addicted to liquor and tobacco. Obliged to submit to an operation for fistula, he was brought to the operating-table in a state of great excitement, and it was with difficulty that he could be anæsthetized. The narcosis lasted twenty-two minutes, and two minutes after awakening his pulse went from 80 to 100, the respiration remaining normal. For more than an hour the radial pulse gave the sensation of a rapid and continuous current, the pulsations not being perceptible. The symptoms gradually improved within several hours, and on being questioned the patient admitted having had several attacks of paroxysmal tachycardia.

H. Kionka [226] B.50,H.2,'95 made some experimental researches to determine the quantity of ether or chloroform necessary to produce narcosis, and the action of the circulation and respiration during the anæsthesia. His results demonstrated that the dose required was relatively small and that it varied according to the species of animal. Thus, narcosis could be obtained when the air contained

from 0.15 to 1.3 per cent. (in volume) of chloroform, or 2.1 to 7.9 per cent. of ether. The area of narcosis was greater with ether than with chloroform, or, in other words, the minimum quantity of ether necessary to produce anæsthesia could be greatly exceeded without endangering the life of the animal. Again, with ether the narcosis could be prolonged by using the same dose, while, under similar conditions, chloroform invariably caused the death of the animal. Further, sleep under ether, when once established, could be maintained with smaller doses than those required to produce it. From the beginning, and even before narcosis was established, chloroform acted unfavorably upon the respiration and circulation, and caused early arrest of the heart and respiration. Ether affected neither of these, but exercised an irritating action on all the mucous membranes, even those with which it had not been brought in contact during narcosis.

[Kionka's work is of great value. Since Fischer and Thiem showed that a species of fatty degeneration followed the use of chloroform, the opinion has rapidly gained ground that the less of that narcotic the patient inhales the safer will he be. The like proposition for ether has not been so readily grasped. Without proof the mistaken opinion has been accepted that, ether being a weaker anæsthetic, to obtain a satisfactory result it must be given in very large quantity. Many surgeons ask for chloroform "to relax the muscles," whereas, as Snow showed many years ago, a more complete muscular relaxation can be obtained with ether than with chloroform. It is easy to explain this. If chloroform is pushed to the degree of muscular flaccidity it would poison the medullary centres, which ether does not do. Ether, when properly given, acts in about two to three minutes, and after this very little more is required. But both for chloroform and ether there is a personal equation. Every individual requires a specific dose,—the drunkard and the powerful athlete require much; the pale, frail, anæmic woman very little. To be successful one has to take each case on its merits and dose it accordingly. This is for the human being what Kionka did for the lower animals.—D. B.]

A. E. Sansom, of London, $^{2}_{\text{Dec.15,'95}}$ shows that air, inspired from a surface of chloroform at ordinary temperatures, can be loaded with chloroform-vapor to the extent of 35 per cent.; that as the chloroform continues to evaporate the proportion rapidly decreases; that the proportion also diminishes according to the quantity of chloroform originally employed; but that even ½ drachm (2 grammes) poured upon lint may give off at the earliest inspirations an atmosphere containing more than 9 per cent. of vapor,—a percentage known to be dangerous.

Robert Kirk, of Glasgow, $^{2}_{\text{Jan.12,'95}}$ in dissenting from Sansom's opinion, directs attention to an experiment first performed by Sir Joseph Lister, and which he has frequently repeated. Sir Joseph came to the opinion that at a temperature of 70° F. (21.1° C.) the patient would not inhale more than 4½ per cent., even when 1½ drachms (6 grammes) had been poured on the towel at the commencement. It appeared to Kirk, on repeating the experiment, that this was a good deal over rather than under the mark. Indeed, he was so struck with this experiment that he has never cared since to administer chloroform at a temperature below 60° F. (15.6° C.), and he much prefers one of 65° to 70° F. (18.3° to 21.1° C.) even with the supposed dangerous ready method. What seems to him more decisive of the question are the effects produced by the open-air method compared with the results obtained with titrated mixtures. He has found, for instance, that an atmosphere of 5 per cent. is one of overwhelming power; that he cannot bring his nose and mouth near it; that it will kill the strongest rat or mouse in from ten to fifteen seconds. Further, that 2½ to 3½ per cent. produced effects on cats and dogs quite as pronounced as he can produce in children of a year or two old by the "ready" method; and when he is told that he gives the children 5, not to mention 10 per cent. of chloroform, which would kill them in half a minute, he can only express his surprise. Admitting to the full the necessity for diluting the vapor, he yet maintains that this is accomplished by a towel as effectually as by any inhaler whatever.

White $^{2}_{\text{Apr.20,'95}}$ states that the sequence of events—slow, labored breathing, passing on to irregularity, with circulatory failure—was shown to undergo modification according as the overdose given is presented in rapid or prolonged administration. Sibson, Percy, Glover, Snow, and Richardson all agree that a dose in bulk rapidly stops the heart at once, whereas when the chloroform is slowly, but continuously, administered respiratory failure is the initial symptom. The author's own experiments showed that the blood of the carotids and femorals, after an animal was killed by a sudden action of an overdose, contained little more than two-thirds of the amount of chloroform present in animals safely anæsthetized by slow administration; hence he concludes that "death is not the result of the amount in the circulation, but of the sudden action of a lethal dose."

R. W. Carter, of Weymouth, $^{2}_{\text{Oct.6,'94}}$ is thoroughly convinced that the true cause of the numerous deaths under anæsthetics is an overdose. He appends the following table of cases, showing the amount of chloroform used:—

Date and Hour.	Sex and Age.	Nature of Operation.	Anæsthetic and How Given.	Duration and Quantity Used.	Source.	Remarks.
1894. Jan. 21, 9.50 A.M.	M., 8 years.	Removing diseased cervical glands adjacent to sheath of carotid artery and other important structures, the dissections requiring great care.	Chloroform; Krohne's modified Junker.	8″ getting under; 50″ altogether; ʒj and ℥x.	Duncan and Flockhart.	Very slight sickness. Aimed at keeping him under the effects with the least possible amount, and when anæsthesia was complete maintained it with the least possible quantity.
Mar. 16, 11.20 A.M.	M., 9 years.	Cauterizing nævus in left upper lid.	Ditto.	6″ getting under; 10″ altogether; ℥l.	Ditto.	Profound narcosis, which lasted twenty minutes after withdrawal of anæsthetic: great pallor of features while under the influence; pupils small. In this case 1.15 per cent. of chloroform was given more than needed, demonstrating the method before a party of medical men who came to examine it.
Mar. 22, 12.10 P.M.	F., 10 mos.	Opening abscess at side of nose; diseased bone.	Ditto.	4″ getting under; 10″ altogether; ℥xxx.	Ditto.	Anæsthesia was very profound for several minutes after withdrawal of inhaler.
Apr. 1, 9.50 A.M.	F., 19 years.	Abdominal section; removal of ovaries and tubes and portions of tuberculous deposit in the abdomen.	Ditto.	10″ getting under; 115″ altogether; ʒvij.	Ditto.	No sickness; no ill effects.
Apr. 15, 9.50 A.M.	F., 10 years.	Removal of large suppurating glands in the neck.	Ditto, with mouth-tube.	7″ getting under; 40″ altogether; ʒiij.	Ditto.	Assumed a deep cyanotic color, like in etherization; a large vessel was divided during the operation; her pulse became small, but not from loss of blood; sickness also interfered with the operation.
Apr. 15, 11.40 A.M.	F., 48 years.	Opening out sinuses in gums and removing caries of alveoli.	Ditto, with tube.	12″ getting under; 23″ altogether; ʒiiss.	Ditto.	An extremely nervous woman; breathing stopped altogether at times when less pressure was made on the bellows; good deal of bleeding in the mouth; completely narcotized; rallied well.
May 8, 12.15 P.M.	F., 2 years 4 mos.	Needling lamellar cataract.	Ditto, without tube.	4″ getting under; 6″ altogether; ℥xx.	Ditto.	Struggled and screamed violently when mask was put on; had to be kept down; narcotism deep.

C. G. Bremer [19] [586 No.32,794, Feb.9,'95] concludes that the drop-by-drop method is much less disagreeable for the sufferer; excitement is less frequent; the patient comes more quietly under the influence of the anæsthetic and vomiting is less frequent during its administration. The quantity of chloroform required for complete anæsthetization of an adult is between 17.5 and 21.5 grammes (4½ and

5½ drachms) instead of 100 to 200 grammes (3¼ to 6½ ounces) as by other methods. The anæsthetic may be continued for several hours without danger; vomiting, headache, and other disagreeable symptoms following awakening are less frequent, while accidents are infrequent. His experience is based upon 1000 cases.

W. A. Parker, of Lancaster, $^{2}_{\text{Apr.20,'95}}$ asks why there is hardly ever a report of a death under chloroform from Scotland, where practically nothing else is used. Personally, he believes the reason is that the men are not afraid of chloroform, and use it fearlessly in unstinted doses, pushing the patient rapidly under, and so lessening the chances of the only real practical danger,—namely, syncope. To any one noticing it, it is marvelous how men insist on the smallness of the amount of chloroform which has been used in a fatal case. Case after case is reported in which ½ to 2½ drachms (2 to 10 grammes) are stated as the amount used, and yet no fatal cases occur, where, as in the more usual Scottish method, several drachms are poured on a towel and frequently renewed.

The system of administering chloroform advocated by R. W. Carter, of Weymouth, $^{2}_{\text{Nov.10,'94}}$ is as follows: The vapor is given in inspiration only and at first much diluted, when the patient generally merges into a quiet sleep without the stage of excitement (which, like resistance, coughing, etc., should be carefully avoided, as they are nearly always provoked by too concentrated a vapor), when the corneal reflex is then in abeyance and anæsthesia complete. It is asserted that the maximum of danger obtains in the early stages of inhalation. He has never had any anxiety at this period, and finds no discomfort or terror when proper dilution has been employed, but a gradual accommodation of the system to the new state; the tolerance of the vapor is great when gradually introduced thus, and a proportion is breathed with ease at the later stage which would induce resistance, spasm of the glottis, etc., if given at the beginning. He quotes A. E. Sansom as saying: "I am quite sure the danger of chloroform is not proportionate to the quantity retained in the system; it is its early influence, the *brusquerie* of its action, which has caused the greater part of the fatality; it is not only at the early stages of inhalation, but in cases where the smallest quantities have been used, that cases have been rendered suddenly fatal."

[There seems every reason to believe that an overdose of chloroform may be arrived at in one of two ways: (1) a sudden intake of a lethal dose, which, according to Sansom, who followed Snow's emphatic teaching, may be taken when even a small quantity of the anæsthetic is thrown on lint or a towel; or (2) through accumulation of the drug in the body. This commonly

shows itself by paralyzing the medullary centres and so producing cessation of respiration. Impairment of *expiration* is the most usual cause of this, due in many cases to some mechanical cause, such as emphysema, falling back of the tongue, sucking in of the lips, or blocking of the air-ways by mucus or blood. The theory of Kirk is one I have utterly failed to recognize in men or the lower animals. It is quite true that, provided the expiration is very vigorous and the patient is not readily affected by the drug, quite large percentages may be taken with apparent safety. But it is, nevertheless, equally true that a great many persons inhaling over 4 per cent. of chloroform-vapor may, by some cause trivial in itself, cease to pump out the chloroform in their lungs, and the patients rapidly become poisoned. Not only does chloroform appear to be obnoxious to every individual to a particular extent, but his *zone maniable*, as Best termed it, seems to vary at given times, and without any recognizable reason. Under these circumstances it must appear reasonable to rely rather upon a method which does in fact give the administrator a fair chance of standardizing the strength of vapor of chloroform with which he is working rather than upon one which gives off a different vapor-strength according to the quantity of chloroform thrown upon the cloth, the temperature of the room, and the vigor of the patient's respiration. Bremer's remarks upon the drop method appear based on inaccurate or, perhaps it should be said, incomplete data. Three and one-half to $6\frac{1}{2}$ ounces (105 to 195 grammes) of chloroform form an enormous quantity to give even by the open method. With Lawrie's cone 1 or 2 ounces (30 or 60 grammes) will carry a patient through a long operation, while if Junker's inhaler be employed as many drachms will produce and maintain anæsthesia for half or even an hour. He is quite correct in hinting that the after-effects, the sickness, headache, and so on, are directly proportionate to the amount of chloroform inhaled.

Parker's query about Scotland and the assumed immunity from chloroform in that country admit of quite another explanation than that which he offers. In the first place, many deaths under chloroform have occurred in Scotland even as early as in the days of Sympson, who himself referred to fatal syncope under chloroform. Further, as no public or private investigation is held concerning such deaths as would correspond with our coroners' inquests, no report gets into the public press. Scotch surgeons commonly find their way into England and elsewhere, and, although they retain their fearless (? reckless) methods of giving chloroform, they do not enjoy any greater immunity from fatal cases than do the followers of other schools.—D. B.]

Ether.

Gurlt, of Berlin, [673 June,'95] charged by the German Surgical Congress to annually conduct a collective investigation on anæsthetics, presented his report for this year at the last meeting: 52,677 new cases were reported, of which 31,803 were chloroform narcosis, with 23 deaths, and 15,712 were ether narcosis, with 5 deaths. In 2148 cases narcosis was produced by a mixture of chloroform and ether, in 1554 by the so-called Billroth mixture, in 1425 by ethyl-bromide, and in 34 by pental. The use of ether has much increased. The mortality from chloroform seems to be much greater than that from ether; but very often grave disorders of the respiratory organs, such as pneumonia and bronchitis, result from the inhalation of ether, and death from those complications ought to be regarded as equivalent to death under anæsthetics.

[These statistics are rendered less valuable by the fact that details of methods of giving the anæsthetics are omitted. A more dangerous anæsthetic given properly is less perilous than a safer one given by a faulty method. The mortality under ether from "grave disorders of the respiratory organs" coming on after the administration is over and the patient has resumed consciousness is a very difficult thing to arrive at. I have found, on carefully investigating these so-called cases of bronchitis and pneumonia following ether, that but few are really due to that agent. In many cases removal of the patient to a cold ward after having been in a hot operating-theatre and subjected to severe surgical shock has been the more probable cause of lung trouble. In other cases pre-existing pulmonary disease has been demonstrated. In others considerable cooling of the body has taken place, due to wet towels soaked in antiseptics having been freely laid over the chest-walls; or the antiseptic spray, douche, packing, or irrigation has been employed. Bronchial catarrh, pneumonia, and pleurisy with effusion do follow the performance of operations—usually prolonged ones—under anæsthetics, but these diseases occur with chloroform as well as ether; so that it seems, at least, probable that the operation may play no unimportant part by lowering the patient's vitality. Statistics of pneumonia following shock where no anæsthetic is given are wanting, but it is not uncommon.—D. W. B.]

In a case reported by Poppert [69 Sept.13,'94; 2 Oct.13] rapidly increasing dyspnœa supervened one hour after the operation, and an hour later death, found at the necropsy to have been caused by œdema of the lungs. Although slight peritonitis was present, there was nothing to necessitate a fatal issue. The author gives short details of 7 published cases of death from ether, and draws special attention

to pulmonary œdema as being the cause of death. This œdema can, he states, be produced experimentally in animals, and is due to the toxic action of the ether. He also refers to 8 such cases of broncho-pneumonia, and suggests that if these late deaths were added to Gurlt's statistics it would make the proportion of deaths 1 in 1167 for ether and 1 in 2647 for chloroform administrations. The author concludes that the statistics hitherto given have not established the superiority of ether over chloroform.

[In the cases reported by Poppert it is necessary that we should know how he gives his ether, as pulmonary œdema has never, in my experience, occurred in man or the lower animals when ether is given from a suitable inhaler, but may follow its exhibition from a cone or towel folded like a cone. It is then a question of dose. It is a curious fact that lung complications usually occur in the practice of surgeons more familiar with the use of chloroform.—D. W. B.]

Mikulicz, of Breslau, $^{4}_{\text{Nov.12,'94}}$; $^{15}_{\text{Jan.,'95}}$ holds that Gurlt's statistics are so overwhelmingly favorable to ether that he urges German surgeons to use it as the least dangerous of the anæsthetics, and that it is the duty of every surgeon to justify his action in adhering to chloroform. This he proceeds to do. He used ether during the winter session of 1893–94, and during that time about eighty patients were put under its influence in his presence; he had no fatal accident, and his statistics do not injure Gurlt's figures. But he has observed, several times after the administration of ether, accidents which do not support the statement of its harmlessness, and he has accordingly fallen back on chloroform. The ether used was absolutely pure, and the cases were carefully chosen. Especially were patients with pulmonary affections excluded, as also small children and old people, as well as those with weak heart and marked anæmia.

Mikulicz sums up his untoward experiences in the following manner: (1) asphyxia during narcosis, 3 cases; (2) collapse after administration, 2 cases; (3) acute bronchitis, 4 cases; and (4) œdema of the lung and pneumonia, 2 cases. The 4 cases of acute bronchitis were not unexpected, as all observers have met them. It is not, however, as harmless as represented, more especially as Gurlt himself admits it may go on to broncho-pneumonia. The 2 cases of ether pneumonia did not prove fatal, though they pointed out the serious danger that is unknown to chloroform. Mikulicz's experience has brought out two dangers not sufficiently considered,—viz., late collapse and ether pneumonia, or lung œdema. From his experience and study of statistics, he believes that there is risk in ether which is not expressed

in statistics, and that the lesser danger of ether as compared with chloroform is not yet proved.

[A factor likely to introduce fallacies, when "late collapse" is attributed to ether, is the shock incident to operation. At all events, in many parts of Great Britain ether is used only when the patient is in a very bad state of health as the result of protracted illness or accident,—*e.g.*, strangulation of the intestines or railway smashes. These people take ether, and its stimulating properties carry them through the operation. Later, as this wears off, "after-shock" or collapse comes on and is in many cases erroneously attributed to "ether-shock."—D. W. B.]

Poncet, of Lyons, [22] June 12,'95 published his experience in 25,000 cases anæsthetized by him the last twenty-seven years. In young subjects up to the age of 14 years he found ether too irritating, especially when any trace of bronchitis existed. He, therefore, makes it a rule to use chloroform in patients within the first 14 years, but he gives preference to ether for adults. In aged persons suffering from emphysema, but, above all, from pulmonary catarrh, ether is contra-indicated. It does not provoke, as in children, an abundance of mucus, but permanently irritates the lungs. Bronchitis and broncho-pneumonia, followed by death, have been more than once witnessed as a result of using this anæsthetic.

W. H. Prescott, of Boston, [99] Mar.23,'95 gave the details of two cases in which acute croupous pneumonia and one of acute lobar pneumonia followed etherization. He regards ether as a rare cause of the latter form of pneumonia, and suggests the possibility of mere coincidence in the cases reported. In that described by him, for instance, the affection presented a clear history of exposure during which a slight chill had occurred.

Nauwerck, of Königsberg, [69] Feb.21,'95 also reported two cases of infectious pneumonia following etherization. At the autopsy of the first case there were found tuberculosis of the peritoneum of ovarian origin; numerous inflammatory foci of pneumonia in both lungs, with here and there granular deposits; bronchial mucous membrane highly congested, with localized hæmorrhages. The bronchial cavity was filled with a grayish, spumous fluid. There were frequent hæmorrhages in the pleura and extensive fibrinous pseudomembranes. No signs of tuberculization. The heart presented nothing unusual. An examination of the scrapings of the broncho-pneumonic foci demonstrated the presence of large numbers of streptococci. The culture upon glycerinated gelose only produced colonies of streptococci.

In the second case the patient was a woman with the heart and lungs perfectly healthy, upon whom gastro-enterotomy was

performed for cancer of the pylorus. The same phenomena occurred during anæsthesia by ether,—*i.e.*, great bronchial hypersecretion. No vomiting. The cough and a stitch in the right side developed almost immediately after the operation. The temperature was increased to 39° C. (102.2° F.) the following day and remained high all the time. Death occurred eighteen days after the intervention, following an unsubduable diarrhœa. The autopsy showed complete union of the abdominal wound, a little pus in the adhesions, and recent mitral vegetations. There were also purulent diaphragmatic pleurisy on the right, centres of lobular pneumonia disseminated throughout the lungs, the bronchi were filled with pus, and general hepatization had taken place. A pulmonary abscess opposite the axilla had perforated the pleura and a portion of sphacelous pulmonary tissue projected from the aperture.

These two cases of infectious pneumonia agree, as to cause and effect. There can be no question of infection consequent upon toxic irritation of the mucous membrane, as the morbid phenomena declared themselves only a few hours after the anæsthesia. In the opinion of the author there was an auto-infection of buccal origin. The buccal cavity contains normally quite a considerable number of pathogenic microbes, which play an important part in acute pneumonia,—pneumococci, streptococci, and staphylococci of varying numbers and virulence.

[As Nauwerck justly points out, many cases of so-called ether-pneumonia are not due to ether, but are of septic origin, the result, in fact, of auto-inoculation. The ether or other anæsthetic produced paralysis of the soft palate, the base of the tongue, and the epiglottidean muscles, so that mucus and saliva flow plentifully into the air-passages. In fact, practically the same thing occurs, only in a less pronounced manner, as when the patient vomits and aspirates some of the vomited matters into his lungs. Nauwerck's paper is an important contribution to our knowledge.—D. W. B.]

J. Chalmers Da Costa, of Philadelphia, $\frac{9}{\text{Mar.2,'95}}$ thinks that ether-pneumonia may possibly be due, in some instances at least, to the action of intense cold upon the lungs, produced by the action of ether-vapor, and that œdema of the lungs may arise from contraction of the pulmonary capillaries, thus producing a loss of *vis a tergo* and damming up of blood in the veins. Furthermore, the same condition may produce sudden paralysis of the heart. In his opinion etherization produces a marked diminution in the hæmoglobin of the blood. The red corpuscles and the hæmoglobin are especially affected in blood previously diseased,—in such conditions, for instance, as anæmia. Irregular reports are

due to faulty observation, to the presence of altered hæmoglobin in the blood, to the faulty aberration as to color of a Fleischl instrument, or to taking the blood before anæsthesia is completed. The white corpuscles show irregular changes which are not characteristic, and exhibit variations not more pronounced than would be found in the same number of samples of normal blood on different examinations. Age does not apparently influence the results. The chilling of the blood-stream may be responsible for the nephritis that occasionally follows etherization. Prolonged anæsthesia profoundly deteriorates the blood and strongly militates against recovery; hence rapidity of operation is most desirable.

[Attention was drawn some years ago to the dangers arising from rapid evaporation of the ether from the pulmonary mucous membrane by W. Lawson Tait, who suggested a means by which the cooling might be obviated. The best plan, however, for counteracting this danger is to give ether from a closed inhaler which is separated from the patient's face by a bag containing air. The "open" method, and, indeed, any plan which requires a very large expenditure of ether, is likely to act prejudicially in this respect from the large quantity of ether which is of necessity evaporated from the lungs. How far ether is responsible for or ever occasions nephritis is at present *sub judice*.—D. W. B.]

Bruns [4 Dec.17,'94] has noticed that the bronchial and pulmonary symptoms are produced in series and are due to the quality of the ether used. When care is not exercised to protect the ether against the access of air, it decomposes and gives off, among other products of oxidation, vinous alcohol and peroxide of hydrogen, which may irritate the mucous membranes of the respiratory tracts. The ether must therefore be protected not only against the effects of light, but also against those of atmospheric oxygen. To this end it should be kept in small bottles, entirely filled and well corked, placed in a cool, dark place. Ether remaining in a bottle having been partially emptied should never be used.

[This plan has been adopted, at my suggestion, at University College Hospital, with the best results for some years past.—D. W. B.]

Angelesco, of Paris, [3 Dec.14,'94; 1 Jan.12,'95] studied the influence of etherization upon temperature in fifty cases, and reached the following conclusions: 1. During the whole time anæsthesia lasts the temperature falls; so that the hypothermia is proportional to the duration of the anæsthesia. 2. The variation in the temperature is much more marked at the beginning of anæsthesia than subsequently; the difference is found to be most marked during the first and second fifteen minutes. 3. The fall in temperature con-

tinues, though in a slight degree, during the deep sleep following the anæsthesia. 4. The temperature begins to rise at the moment of waking and proceeds in a ratio inverse to the fall; so that the rise becomes more and more marked as the patient becomes more completely awake. The fall in the temperature under the influence of ether has been attributed to increased radiation of the uncovered parts, to the immobility, and to slower oxidation and lessened absorption of oxygen. While Simonin and Kappeler found that the temperature might fall decidedly during chloroform anæsthesia, Dastre considered that etherization lowered it still more, and Angelesco's studies seem to confirm this idea. The latter thinks that the temperature difference following the administration of these anæsthetics is due to the fact that ether causes vaso-dilatation, while chloroform produces vaso-constriction.

[The profuse sweating commonly associated with the inhalation of ether would rapidly lower temperature. It is usually found, although not in all cases, that the temperature of a patient just before an operation is lowered. Fear and excitement will, in the lower animals, cause a rapid rise of temperature. Again, as was mentioned in speaking of the causation of bronchitis in ether cases, the cooling action exercised is largely dependent upon the method employed, and is, to a great extent, under the control of the administrator of the anæsthetic.—D. W. B.]

Genito-Urinary Tract.—J. B. Deaver and C. Frese, of Philadelphia, $\frac{112}{\text{July,'95}}$ after painstaking study of the influence of ether-narcosis upon the genito-urinary tract in one hundred cases, reached the conclusion that ether has a very considerable irritating effect on the kidneys, and that the urine of each patient to be anæsthetized should be examined. The quantity of the ether used in a given case ought to be as limited as consistent with the necessary anæsthetic effect, the irritating effect of ether on the urinary tract being necessarily more profound the more of the drug is inhaled, and in this way give rise to untoward results, although the heart and respiration may not be affected. Careless and reckless administration of ether may thus compromise the result of an otherwise perfect operation.

Barensfeld, of Munich, $\frac{34}{\text{No.41,'94}}$; $\frac{5}{\text{Apr.,'95}}$ examined the urine of 150 patients before and after ether-narcosis and found albumin present in only 4; in 3 of these it had no bearing on the ether-narcosis. In 1, therefore, out of 150 cases, albumin was found in a small amount after ether, but disappeared after five days. The author concludes, therefore, that a true ether-nephritis does not exist, and agrees with Fueter and Roux to the effect that albumin cannot be found after etherization where it could not have been found pre-

viously. He also relates a case of hydronephrosis in a 3½-year-old child in whose urine no albumin was found after etherization and nephrectomy. Robert F. Weir, of New York, [59 June 8,'95] studied a series of 305 cases. In 264 no bad effect was discoverable. In 31 normal cases albumin was found after ether-narcosis; in 8 already present albumin was increased in quantity, making 39 in which a perceptibly bad effect had been produced,—*i.e.*, 13 per cent. of the entire number examined. The conclusion is reached, therefore, that in the vast majority of cases normal kidneys are not affected by etherization. When they are, the albuminuria produced is very transient and does no harm even if the organ be slightly diseased. Elevation of temperature, which formerly he thought would augment the work of the kidneys, in connection with ether-narcosis, and bring about suppression of secretion, does not appear to exercise much influence in this respect. G. Gordon Campbell, of Montreal, [96 Dec.,'94] detected albumin in 7 out of 100 cases in which it had been absent before anæsthetization. It disappeared within forty-eight hours in every case.

[The results at which Weir and Barensfeld have arrived agree with those of Wunderlich, Alber, Rindskopt, and with my own. It has to be remembered that the vapor is very rapidly eliminated, and mainly by the lungs. It is important to ascertain, in all cases of albuminuria following ether, whether emunctories other than the kidneys are so damaged as to throw the elimination upon these organs. In many cases of suppression of urine following operations upon the kidneys, when ether was used, the fatal result has been due to the operation. The same thing follows even when chloroform is employed. In my own experience any grave renal lesion following the use of ether has been most exceptional, and I have never been able to satisfy myself that ether has ever caused a death in this way, when the ether has been given by myself or under my supervision. On the other hand, it cannot be denied that very many most competent observers have traced, in causal relation, deaths following ether administration which had set up renal disturbances. Chloroform also gives rise to albuminuria in certain persons; so that probably the vaso-motorial perturbances arising when these bodies enter the circulation are the causes of the albumin, and the ether or chloroform does not *per se* act as an irritant; this, however, has yet to be determined.—D. W. B.]

Nervous System.—E. Lenoble, of Paris, [126 Apr.15,'95] considers nystagmus as a transitory phenomenon at the beginning of muscular resolution, which occurs in more than half of the cases. The movements are lateral. The corneal reflex continues. The epi-

leptic trepidation belongs to the surgical period of anæsthesia, and is limited to the lower limbs, though the conditions are variable; the patellar reflexes remain normal. It occurs in more than two-thirds of the cases. When the two signs occur simultaneously the nystagmus precedes. These phenomena are of nervous origin, due to the excito-motor action of the ether acting principally upon the lower spinal cord.

[It is not clear what is meant by epileptic trepidation. If "epileptic," the condition can only occur in subjects prone to *haut* or *petit mal;* but if epileptoid movements are meant, it seems probable that Lenoble refers to the ankle-clonus, which is by no means an uncommon phenomenon of the earlier stages of anæsthesia. The first condition is a jerky movement quite similar to, if not identical with, ankle-clonus found in certain nerve disorders. When, as often happens, the surgeon's assistants attend to control this movement, it, of course, grows more troublesome until the whole limb becomes the seat of clonic movements. I pointed out some years ago, in a paper on "Ankle-Clonus under Nitrous-Oxide Gas," that these clonic movements occur under the influence of most, if not all, anæsthetics. They appear in the earlier stages of anæsthesia, but are lost in the deeper zones of narcosis. The patellar reflex can also be abolished in profound anæsthesia. —D. W. B.]

W. Busse[2031/95] states that, according to Kölliker, chloroform should replace ether (1) when disturbing complications arise during ether-narcosis (profuse flow of mucus, cyanosis, continuous coughing, singultus, etc.); (2) when the administration of ether does not produce sufficient muscular relaxation; (3) in operations upon the face. Ether should invariably be used first, and chloroform be resorted to upon the appearance of the untoward conditions mentioned. For ether-narcosis Kölliker employs a very practical modification of Julliard's mask, consisting of a threefold wire-basket, covered upon the outside with an impermeable material, and having in its central portion the layer intended to hold the ether. The latter can thus be steadily poured in without its being necessary to remove the mask from the face.

[Of all general rules those of Kölliker's are or should be open to many exceptions. Several of the complications occurring under (1) will disappear if the ether is pushed and plenty of air be given with it. With regard to cyanosis great care is necessary when chloroform is substituted for ether, as anaërated blood is always a grave danger with chloroform. The cases in which the change proves highly efficacious are those in which the cyanosis is due to some spasmodic condition of the larynx or bronchi.

To resort to chloroform when ether fails to give muscular relaxation is based on an old and mistaken idea that muscular rigidity is more likely to persist with ether than with chloroform. The hard, board-like muscles sometimes seen under ether are due, as a rule, to an imperfection in the way in which the ether is given. Snow rightly pointed out that the most absolute muscular relaxation which could be obtained was that given by ether. It is true that an average muscular flaccidity follows in a shorter time with chloroform than with ether, because, unless the latter is given carefully and not crowded on at the outset, a considerable amount of spasm is set up, which lessens the intake. On the other hand, chloroform, if pushed to the extent of deep anæsthesia,—Snow's fourth stage,—when the muscles are quite relaxed, lodges the patient in a condition in which his medullary centres are poisoned and his vital processes are slowly, but surely, stopping. Ether, however, can safely be pushed to this profound stage of anæsthesia without the respiratory centre becoming involved. The frequency of death occurring under chloroform when dislocations are being reduced is explicable by this view, and may be obviated by ether being used and slowly pushed to profound anæsthesia, rather than following Kölliker's rule of substituting chloroform. Neither Julliard's nor Kölliker's ether-masks are satisfactory apparatuses for giving ether.—D. W. B.]

König [4 Dec.31,'94] has given chloroform about eight thousand times with only a single death, and that in a case of exophthalmic goitre; on the other hand, he has practiced six hundred and thirty-two etherizations without any fatal accident, either during the anæsthesia or afterward. With ether serious accidents are much more rare than with chloroform, but ether, in a great number of cases, only induces an insufficient anæsthesia, especially in operations in the abdomen. Thus, adopting a stand-point between those of Mikulicz and of Bruns, König states that, according to the case, recourse should be had to either chloroform or ether, although he considers the latter as the leading anæsthetic, leaving aside all considerations as to the seat of the operation and the condition of the respiratory tracts. When the ether proves insufficient the author substitutes chloroform.

[Insufficient anæsthesia under ether need never occur. Even with persons case-hardened by prolonged drunkenness I have met with only one case which resisted efforts to obtain full anæsthesia with ether. In that case the patient was in such a bad general condition that the anæsthetic could not be pushed to its extreme possibility. The usual trouble lies with the method of giving the ether, and not with the anæsthetic.—D. W. B.]

B. M. H. Rodgers, of Bristol, [131 Mar.,'95] emphasizes the practical value of the suggestion made as long ago as 1876 by Clover, to the effect that before giving ether it is advisable to administer nitrous oxide. All the unpleasant sensations experienced during the early stages of ether-anæsthesia may, he states, be avoided by giving a small quantity of nitrous oxide first.

[When this method is properly carried out it is unquestionably the best to adopt, from every point of view.—D. W. B.]

F. D. Bullard, of Los Angeles, [44 Sept.,'94] uses a slight modification of the Parkinson inhaler, the metal part being dipped in hot water just before application, so that the patient inhales warm ether. He regards this as an important principle, from the fact that anæsthesia is more rapidly produced, with less discomfort to the patient. The ether may be pushed rapidly, and the patient also recovers rapidly. Careful observation of forty cases anæsthetized by the closed warm-vapor method convinces him of its efficacy. The usual dangers of ether are thus minimized.

G. Gordon Campbell, of Montreal, [96 Dec.,'94] conducted a series of observations in 300 cases. The time required to produce full anæsthesia averaged 4.8 minutes,—the longest being 12, the shortest 2 minutes. Vomiting occurred in 5.6 per cent. of the cases only, but vomiting after anæsthetization occurred in 90 per cent. of all cases. Considerable quickening of both pulse and respiration usually appeared at the outset, then gradual slowing of the pulse down to the normal rate. The rate of the breathing was increased reflexly by certain manipulations on the part of the operator. These were: stretching the sphincter ani and working with the mucosa of the rectum; sometimes stretching the perineum, rough handling of the peritoneum especially breaking down adhesions, and working with the ovaries and testes. The pulse-rate was increased by hæmorrhage, and both pulse and respirations by an overdose of ether. This latter observation had been worked out experimentally. The practical points were to watch both pulse and respiration carefully. Quickening of respiration alone was accounted for reflexly, and a less amount of ether should be given, as otherwise the increased rate of breathing would lead to an overdose. Quickening of both pulse and respiration meant an overdose; quickening of the pulse alone meant hæmorrhage.

[It has never occurred to me to see an overdose of ether brought about in this way. Usually the quickened breathing indicates a too shallow zone of anæsthesia, requiring more ether, which would be obtained through the incurred rapidity of breathing. The guides to ether-anæsthesia are the respiration—which should always be watched—and the color of the patient. Any appear-

ance of cyanosis renders it imperative to give the patient more air.—D. W. B.]

A. C. E. Mixture.

Edgar B. Truman, of Nottingham, $\frac{6}{\text{Feb.16,'95}}$ called attention to the fact that the view that a mixture of 1 part of chloroform and 2 of ether produces a vapor consisting of 2 volumes of ether and 1 of chloroform, which is capable of neutralizing the depressing action of the chloroform upon the heart by the stimulating action of the ether, is not based upon chemical facts. Ether boils at 35° C. (95° F.) and chloroform at 62.7° C. (145° F.), and it seems highly probable that the ether would vaporize out of all proportion to the chloroform. Experimentation showed that the patient would be inhaling 100 volumes of ether to 0.953 of chloroform at the first; while if the whole of the contents were used up the patient at the last would be inhaling 100 volumes of ether to 75 of chloroform. He also examined the residues left in Clover's smaller apparatus in three administrations of the mixed anæsthetics. (The A. C. E. mixture of Harley). The specific gravities were 1.144, 1.095, and 1.028, giving the respective quantities of ether to chloroform by weight as 45.3 to 54.7, as 51.7 to 49.3, and as 59.5 to 40.5; or by volume as 90.6 to 54.7, as 103.4 to 49.34, and as 119 to 40; that is, to 100 volumes of ether, 50, 47.6, and 3 volumes of chloroform, respectively, in the state of vapor. The residue first examined, as stated above, contained 100 volumes of ether to 75 of chloroform. These cases show conclusively that, in administering the mixed anæsthetics, a vapor of varying and uncertain composition is employed. J. F. W. Silk states $\frac{6}{\text{Feb.23,'95}}$ that the mixture generally used and alluded to is the A. C. E. mixture, and that it is maintained that the alcohol tends to equalize the evaporation of the other constituents and that it retards the absorption of the chloroform. C. F. Marshall $\frac{6}{\text{Feb.23,'95}}$ contends that the proportions indicated by Truman are practically desirable; the beginning of the administration is the most dangerous period and corresponds with the inhalation of ether chiefly. When the patient is fully under, the increased proportion of chloroform affords much less danger. C. B. Taylor $\frac{6}{\text{Apr.20,'95}}$ states that the possible dangers arising from imperfect admixture of chloroform and ether in the A. C. E. compound anæsthetic, demonstrated by Truman, may be obviated by nebulizing the mixture in Oppenheimer's globe inhaler or some similar apparatus.

Two deaths from the A. C. E. mixture were reported during the year. In the one $\frac{1}{\text{Nov.17,'94}}$ the patient was a woman, 44 years of age, with a bleeding fibroid, who was being anæsthetized in her

bed, outside of the operating-room. The anæsthetic was given through an open cone the top of which was filled with absorbent cotton, the entire amount given being 6 drachms (23 grammes), of which 4 drachms (16 grammes) were probably inhaled. The patient was a large, fleshy, and anæmic subject. Prior to the administration of the anæsthetic she was given an eighth of a grain of morphine hypodermatically. Ten days before this she had taken ether for an examination, and no trouble had resulted. No organic cardiac lesion was detected. The time from the moment she began taking the A. C. E. mixture until she was dead did not exceed fifteen minutes.

The second victim $\frac{2}{\text{Feb. 2, '05}}$ was also large and fat, but of alcoholic habits. He had been admitted on the previous evening for the removal of suppurating glands in the neck. The anæsthetic was administered on an ordinary flannel inhaler. The patient struggled most violently, and had to be restrained, but after a little chloroform had been sprinkled on the inhaler the struggling subsided. The A. C. E. mixture was then resumed. After about two minutes the muscular rigidity became less marked. A little later the breathing became shallow, and the pupils, which had been contracted, began to dilate. The anæsthetic was discontinued, but the face became paler, and the radial pulse could not be felt. Finally, respiration stopped, the face later becoming very cyanozed. The operation had not been commenced, and the anæsthetic had not been given more than five minutes. At the post-mortem examination the right ventricle was found to be very dilated, and there was marked fatty infiltration of its wall. The left ventricle was also dilated, and its wall had undergone some fibrosis. The lungs were emphysematous, and these organs, together with the kidneys, brain, and spleen, were markedly congested.

[The work W. Truman has done is of value. In 1864, when a committee of the Royal Medico-Chirurgical Society of London was appointed to investigate the action of anæsthetics, Harley suggested that adding ether to chloroform would hasten the action of the former and render that of the latter more safe. The added alcohol possesses the properties of a menstruum, as ether and chloroform are not mutually intersoluble. That they do not evaporate equally has long been known. Ellis, in 1866, experimentally showed that of this mixture ether came off almost pure during the first minute, chloroform predominated during the next three minutes, and the alcohol came off last. It was therefore suggested that the vapors, having been evolved, should be administered in the required proportion. The method is, however, cumbersome.

Martindale has proposed that by using alcohol, specific gravity 0.795, one volume; chloroform, specific gravity 1.498, two volumes; and ether, specific gravity 0.720, three volumes, a vapor of more uniform composition can be given off. The A. C. E. mixture should never be given from a Clover inhaler, as it needs far more air-dilution than is afforded by that apparatus.—D. W. B.]

Cocaine.

Schleich, of Berlin, $^{2}_{\text{Nov.3,'94}}$ demonstrated the value of a new method of local anæsthesia—"anæsthesia by infiltration"—which he has employed in all kinds of operations, including laparotomy. He uses a very weak solution of cocaine (1 to 1000), but not dissolved in distilled water, the latter producing toxic effects when injected subcutaneously. The solvent utilized is the physiological salt solution of about half the usual concentration,—that is, about 0.2 to 0.3 per cent. of common salt. Schleich's method is as follows: A small spot of the skin near the field of operation is rendered insensible by chloride of ethyl, and here a few drops of the cocaine solution are injected. At the spot of infiltration a bulla immediately rises, which is absolutely without sensation. Pushing the point of the syringe through this area of insensibility, Schleich again injects a few drops; another bulla rises close to the first, and, proceeding from bulla to bulla round the field of operation, the whole is infiltrated and rendered quite anæsthetic. This is done extremely quickly, as Schleich showed in the case of a man, with a large syphilitic abscess on his arm, who was operated on before the meeting. The man felt absolutely no pain, and the duration of the operation, including the anæsthesia, was only eight to ten minutes. The author employed his method of anæsthesia for about three thousand operations with unvarying success and without untoward after-effects. Würdemann $^{61}_{\text{Dec.29,'94}}$ and O. Bloch, of Albury, $^{267}_{\text{June 15,'95}}$ published eulogistic articles upon Schleich's method.

Réclus, of Paris, $^{2032}_{\text{'95}}$ is one of the rare, if not the only, partisans, in France, of anæsthesia by cocaine in surgical operations. He finds that this agent has the advantage of occasioning complete anæsthesia without influencing the general condition and, consequently, without producing sudden serious accidents. A precise technique is rigorously followed. He never varies from this, and has been able to successfully perform, without the slightest anxiety, over three thousand two hundred operations. This procedure, which the author minutely describes in his little volume, consists in using only a weak solution, carefully dosed at 1 per cent.,—never more; it is amply sufficient to cause anæsthesia

by multiplying the injections of 1 gramme (15½ minims) of the solution. He has rarely been obliged to give more than 10 or 15 injections—thus, 10 or 15 centigrammes (1¾ or 2¼ grains)—of the alkaloid. The author has thus been able to undertake, without any painful reaction, not only the current smaller operations,—abscesses, ingrowing nails, small tumors,—but likewise more important operations, such as cancer of the tongue, castration, strangulated hernias, plastic operations, etc. Cocaine is contra-indicated in all irregular and all great operations, as well as in abdominal surgery (although the author has been able to remove ovarian cysts). It finds its principal use in weakened subjects affected by organic taints, cardiac or otherwise.

J. P. Bryson, of St. Louis, $\frac{1}{\text{Apr.27,'95}}$ performed complete castration for prostatic overgrowth, by White's method, on a man aged 74 years. The parts having been properly asepticized, the entire scrotal sac was seized by the left hand as high up as possible and manipulated for a sufficient time to relax the dartos and cremasters, after which a tolerably strong rubber band was passed above the hand about the root of the sac, close to the peno-scrotal and perineo-scrotal angles. This band was drawn tight enough to strangulate the scrotal and, probably, the funicular circulations. The line of incision on the anterior surface of each sac was now injected with a 4-per-cent. sterilized solution of cocaine, four punctures being made and ½ drachm (2 grammes) of the solution used for each side. The needle was then inserted, half an inch below the constricting band, into the central part of the cords and 5 minims (0.32 gramme) of the same solution were thrown in. The scrotal punctures caused some pain, but the injection of the cords produced none. After the lapse of twelve minutes, pinching and puncturing the skin producing no sensation, the usual incisions were made, exposing the glands and enough of the cords to answer the purpose, and the organs removed. The cords were ligated *in toto*, anchor loops were placed in the stumps and allowed to fall out of the lower angles of the incisions, and the wound was closed with continuous catgut sutures. The entire operation lasted twenty minutes. The band was now cut and the usual dressing applied. So complete and satisfactory was the cocaine anæsthesia that the patient was not aware of the steps of the operation and conversed with a friend.

Maurel, of Toulouse, $\frac{363}{\text{Nov.,'94}}$; $\frac{213}{\text{Feb.,'95}}$ finds that cocaine acts upon the leucocytes and the small blood-vessels. The leucocytes increase in volume, assume a spherical shape, and cease to keep to the parietes of the vessels. The small vessels contract, and thus lead to thrombosis and embolism. Pulmonary embolism is particularly

apt to occur. Small doses of cocaine are sufficient to influence the leucocytes in a marked degree, and this is sufficient to explain the serious consequences that have followed the absorption of slight doses of a concentrated solution. The mechanism of death appears to differ according to the strength of the solution and the mode of introduction into the system. When the drug is injected subcutaneously or into the veins, it paralyzes the leucocytes at the seat of injection; these form emboli, which are the immediate cause of death. The danger is from pulmonary embolism. Injection into systemic arteries is not nearly so dangerous. Maurel has found that more than 5 grammes (1¼ drachms) per kilogramme (2⅕ pounds) of body-weight can be injected into the femoral artery of a rabbit without causing death.

J. P. Bryson, of St. Louis, [1 Apr.27,'95] calls attention to a possible source of danger in cocaine anæsthesia when blood-stasis is produced by a constricting band. The introduction of the cocaine solution under such a condition results in extensive coagulation of the blood, especially in the smaller veins. The 2- and 4-per-cent. solutions thus cause a true primitive red thrombosis. So far as observed by him in many cases of circumcision, however, this thrombosis does not interfere with the healing of the wounds. So long as these clots are aseptic no harm is likely to ensue; but a fault in the asepsis of the fluid, the syringe, the needle, or the skin over the field of operation might easily infect one or more of the thrombotic clots, which, getting afloat in the blood-stream, would be capable of causing mischief at such a distance in time and location as to make it difficult to connect the consequences with their primary cause.

To emphasize the dangers of cocaine anæsthesia J. B. Mattison, of Brooklyn, [16 Feb.,'95] cites four cases of death that had occurred in the practices of as many physicians. In the first case 1 drachm (4 grammes) of a 4-per-cent. solution had been injected into the urethra. Convulsions soon followed, and in four minutes the man was dead. In the second only 20 minims (1.3 grammes) of the same solution had been injected in the same region, the symptoms and result being identical. In the third case a 4-per-cent. solution had been freely applied to a carbolic-acid burn of the face. The woman became excited, walked to a window, and fell dead. In the fourth case 20 minims (1.3 grammes) of a 4-per-cent. solution were injected hypodermatically and renewed in ten minutes, no effect having been obtained from the first dose. In three minutes the man became unconscious and convulsed and died one minute later. Narrow escapes are reported by Schede, of Hamburg, [2029 '95] who used ½ drachm (2 grammes) of a 10-per-cent. solution in the

urethra, and Irving Miller, of Baltimore, [1 Nov.24,'94] who injected 1 grain (0.065 gramme) of cocaine hydrochloride into hæmorrhoids.

[A danger in cocaine anæsthesia, and one which cannot be provided against, is the effect upon the patient of seeing or being aware that an operation is being done upon him. The apprehension, which is so commonly felt, lest pain should be experienced does in many cases produce faintness, and in some instances may produce fatal syncope. This and the terrible danger of initiating the "cocaine habit" are perils too real to be overlooked. The extreme capriciousness of the drug, too, renders its action always uncertain and has restricted its use in general surgery. The extremely narrow escapes which have followed its use have made very many surgeons grow extremely shy of trusting to it.—D. W. B.]

Miscellaneous Anæsthetics.

Bromide of Ethyl.—E. Haffter, of Frauenfeld, [214 Nov.1,'94] states that patients suffering from cardiac organic disease tolerate bromide-of-ethyl anæsthesia quite well. He has resorted to the latter in a large number of cases (including children with mitral insufficiency) and never saw any untoward accessory effects, the sphygmographic curve showing no alterations, etc. In adults he uses, on an average, from 10 to 15 grammes (2½ to 3¾ drachms) of C_2H_5Br, while in children the highest dose employed by him does not exceed 5 grammes (1¼ drachms).

C. G. Cumston, of Boston, [99 Dec.20,'94] has employed it in 200 cases without untoward effects. In children of from 2 to 10 years he employs from 12 to 15 grammes (3¼ to 3¾ drachms); for children over 12 and adults, from 15 to 25 grammes (3¾ to 6½ drachms), according to the constitution of the subject. The patient should be instructed emphatically to take nothing to eat, not even a glass of milk, on the morning of the operation. The mask should cover the mouth and nose perfectly, and no air be allowed to enter. The entire dose should be given at once. Twenty to thirty seconds are sufficient to obtain sleep, and the operator should be in readiness to commence as soon as narcosis is complete. The contra-indications are "dangerous" lesions of the heart, lungs, and kidneys.

Ladreit de Lacharrière, of Paris, [152 May 24,'95] who has used it in over 700 cases, states that it should be administered in sufficient quantity to rapidly induce the first period of narcosis, and that the administration should not be prolonged beyond one or two minutes. In his opinion, bromide of ethyl is of greatest service in operations of short duration. Only pure and freshly prepared perfectly

limpid bromide should be used. It should not present the garlicky odor indicative of a poor preparation.

Bromide of ethyl is recommended by Helme in otolaryngology, [11] Feb.,'95 and G. Morgenthan [61] v.24,p.349 advocates its use in operations for the removal of post-nasal adenoid growths. It is given on a chloroform mask, using ½ drachm (2 grammes) for children. The anæsthesia lasts about two minutes.

[Others have found two grave dangers in the use of bromethyl,—the extremely common presence of impurities, which render it very perilous, and its depressant action upon the heart, due, it would appear, to the bromine in its composition. It has been proved that all the haloid salts are open to this adverse criticism. On the other hand, recently this substance has found many friends who, after careful trial, speak extremely well of it for brief operations, but caution against its employment in prolonged cases. The inhaler once removed should not be re-applied.—D. W. B.]

Guaiacol.—Lucas-Championnière, of Paris, [14] July 31,'95 recommends this agent as a local anæsthetic. Applied to burns in solution, 10 per cent., in olive-oil, it causes an entire disappearance of the pain; the same solution injected subcutaneously has the same effect as cocaine. This substance has been used with absolute success in the extraction of teeth. The tactile sensations remain as before, but all pain is suppressed. The only accident (which occurred but three times in a great number of operations) was a limited ulcerated spot. This is not noticed when a rather deep puncture is made.

He also removed, by means of this process, cysts of the scalp. Anæsthesia is less rapidly produced than with cocaine, being complete only after seven or eight minutes; on the other hand, however, it appears to be much more durable. Anæsthesia is induced even in inflamed tissue. Guaiacol has been used for dental operations upon suppurating gums, and abscesses have been opened by the author. The anæsthesia was easily obtained.

[I have not found guaiacol of much use.—D. W. B.]

Antipyrin.—Pousson, [31] June 26,'95 following the example of Brik and Vigneron, used antipyrin instead of cocaine to obtain anæsthesia of the bladder; the local anæsthetic power of the former substance is decidedly less than that of cocaine, but it has the advantage of being much less toxic. Whatever be the condition of the epithelium of the bladder, antipyrin can always be injected into the cavity and may be allowed to remain there, and, as its antiseptic power is at the least equivalent to that of boric acid, it may also be used to replace the latter in all intra-vesical manœuvres necessitating a certain degree of distension of the bladder.

Pousson uses solutions of antipyrin (1) for examinations of the bladder with the cystoscope; (2) for explorations with the metallic sound and the lithotrite, particularly in those verification explorations which should always follow lithotrity; (3) for short processes of crushing numbers of small stones; (4) for washing the inflamed bladder with a solution of nitrate of silver. The solution of antipyrin used is of 2 per cent., but, according to Vigneron, the strength may without danger be increased to 4 per cent. After the exploration the solution may be left in the bladder or be evacuated with the aid of the sound; in certain cases it would be well to allow from 30 to 40 grammes to remain, in order to obtain a prolongation of the anæsthesia. In all the cases in which he has resorted to this procedure the author has noticed a great tolerance of the bladder; he has never met with either local or general symptoms; no untoward effects upon the renal secretion; no intestinal disturbances or cutaneous manifestations.

Scofone and Battistini, $^{505}_{\text{No.87,'95}}$ in a series of experiments, found that antipyrin, and, at a greater degree, formanilid, applied in concentrated solutions (30 to 50 per cent. for the antipyrin; 2 per cent. or even better, saturation while hot, for the formanilid) have a local paralyzing action upon the mucous membranes, the skin deprived of the epidermis, the nerve-trunks, the muscles, and the cerebral cortex. This action is strictly localized to the point of application; it may disappear spontaneously or after copious washings with a solution of chloride of sodium of 6 per 1000 (the so-called physiological solution), thus allowing of the return of functional powers in the tissues. From the practical point of view Scofone and Battistini consider that these two medicaments may, at most, serve as local and never as general anæsthetics. They recommend extreme prudence in the use of the formanilid, which may give rise to symptoms of general intoxication,—for instance, following hypodermatic injections such as have been given by certain Hungarian surgeons.

Cold.—Létang $^{154}_{\text{Jan.,'95}}$; $^{1}_{\text{Jan.26,'95}}$ contributes a new method of inducing local anæsthesia by cold. It consists in injecting into the region to be operated on a liquid the temperature of which is considerably below the freezing-point. After several trials he found that glycerin, oil, and pure water can be employed in considerable quantities without danger, and that the rapid injection of several cubic centimetres of water at 34° F. (1.1° C.) provokes slight lesions in the tissues, but that this effect is prevented if a drop of ether is added to the water. The following solution keeps well, and may be prepared quickly and aseptically with boiling water: Boiled distilled water, 6 ounces (186 grammes); pure neutral

glycerin, 3 ounces (93 grammes); ether, 90 grains (6 grammes). Ten injections of 150 grains each of this solution may be administered to an adult without any inconvenience. In order to obtain a proper temperature a carbonic-acid apparatus may be used, which will produce an intense cold in a few seconds; also a syringe for interstitial injections, provided with a thermometer the reservoir of which is plunged into the liquid, and the index-rod of which, resting in the cylinder of the syringe, may be examined easily. It requires about forty seconds to bring about the proper temperature, which is 14° F. (—10° C.). Bulbs of ethyl-chloride also may be employed to produce the proper degree of cold.

Among the several inhalers devised during the year, the only one presenting a novel idea is that of R. W. Carter, of Weymouth, Eng. $^{6}_{\text{July 20,'95}}$ His "thermo-ether inhaler" is designed to maintain an equable temperature around the bottle containing the ether or other anæsthetic fluid, and is constructed upon the same principle as Junker's inhaler. It consists of two main parts,—a water-jacket with receptacle for a Japanese tinder-cylinder, and a bottle like the Junker bottle, but graduated to hold 2 ounces (62 grammes) of ether. The water-jacket is suspended in front of the anæsthetist by a strap passing over the shoulder, and the ether-bottle, placed in position, is for about three-fourths of its circumference surrounded by the water-jacket, sufficient space being left for reading its graduation. About 2 or 3 ounces (62 or 93 grammes) of warm water, at about 100° F. (37.8° C.), are put into the jacket.

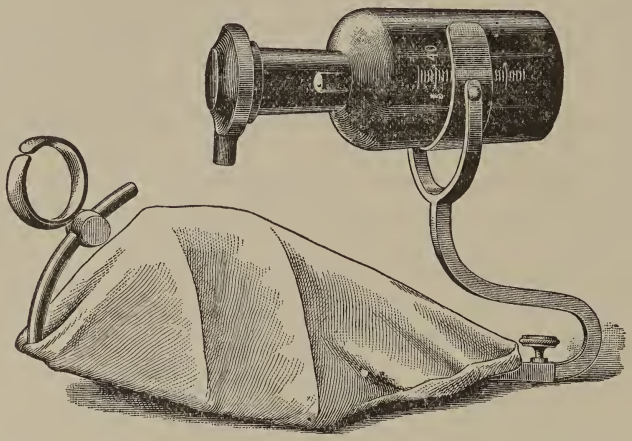
[Carter brought his apparatus before the Society of Anæsthetists and the opinions there expressed by those who had used it were not wholly favorable. It is difficult by its use to rapidly anæsthetize a refractory patient, and in cases where a large dose of ether is required to effect anæsthesia it is said to fail.—D. W. B.]

Paul Rosenberg, of Berlin, $^{336}_{\text{Nov.3,'94}}$ attaches a graduated drop-bottle to a mask, as shown in the cut on next page.

To be able to adapt the concentration of the narcotic vapor exactly and easily to the special requirements which may arise during any phase of the operation, Walther Vulpius, of New York, $^{1}_{\text{Oct.13,'94}}$ devised the modification of the Junker inhaler as shown in the engravings on next page.

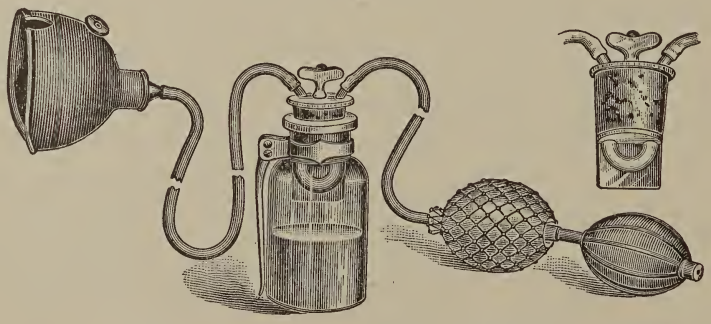
The apparatus consists of a pair of rubber hand-bellows by which a continuous stream of air is produced and led through the afferent rubber tube to a piece of metal tubing, which passes through the stopper of the chloroform-bottle and opens on a level with a smooth metal plate forming the inferior surface of the stopper. In the same way the efferent tube is constructed. The

openings of these tubes within the bottle can be connected or disconnected by means of a semicircularly bent metal tube inserted in a vertical metal plate that can be turned around a vertical axis by means of a shaft, which passes through the centre of the



New Chloroform Mask and Dropper. (Rosenberg.)
Centralblatt für Chirurgie.

stopper and is fitted with a crank at the top of it. This arrangement enables us either to make the entire stream of air to pass over the surface of the chloroform or to turn it off partly or even entirely through the curved tube into the efferent one without any admixture of chloroform-vapor, this being a regulation in



Modification of Junker Inhaler. (Vulpius.)
New York Medical Journal.

which not the amount of air that passes the tubes, but only the degree of saturation which it obtains within the bottle, is subject to change.

The efferent tube is connected with the soft-rubber mask,

which is molded to fit the face tightly, covering the mouth and nose. Besides the opening to which the efferent tube is connected there is another one, which gives entirely free passage to the expiratory air; an open and easily sounding whistle inserted in this opening makes every respiration audible and draws the attention of the physician to any change in the respiratory process.

C. Holtzclaw, of Chattanooga, Tenn., $^{59}_{\text{July 13,'95}}$ uses as a chloroform-dropper a ground-glass stoppered bottle on the rim or flange of which a lip is blown. From this lip there extends downward a small groove on the inside, about half the length of the neck. On the opposite side, about the middle of the neck, there is a small hole for the admission of air.

In the ground-glass stopper there are, on opposite sides, two grooves extending about half the length of the stopper. When wanted for use, the stopper is turned so that its grooves come in apposition with the air-hole on one side and with the groove in the neck on the other. This adjustment can be so regulated as to permit a stream to flow or only a drop every two or three seconds. When not in use the stopper is turned halfway around.

CHLOROFORM-DROPPER. (HOLTZCLAW.)
New York Medical Record.

Ether-Inhalers.—James Bell, of Montreal, $^{282}_{\text{May,'95}}$ considers the Clover inhaler, so extensively used in England, and the use of which has been cultivated to some extent in America, as very objectionable, not only because the patients are obliged to reinhale repeatedly the air which they have exhaled, together with a quantity of ether-vapor, but also because there is no adequate method of cleansing the inhaler or of disinfecting it.

[To obviate this Mayer & Meltzer have made me an inhaler on the principle of Clover's larger inhaler, but which can be taken apart and so allow of the most thorough cleansing. The patient need never rebreathe his exhalations if the inhaler is properly managed. The Berch-Rumboll inhaler is a modification of Clover's, which also gives free exit to all of the patient's exhaled air.—D. W. B.]

Posture During Anæsthesia.

In all cases of asystole experience has led James MacMunn, of London, $^{2}_{\text{Dec.4,'95}}$ to consider the orthodox mode of raising the trunk and legs a mistaken one, as adding embarrassment to the dilated

heart by not only increasing thoracic blood-pressure, but by allowing the abdominal viscera to roll against the diaphragm. Indeed, in cases of impending syncope, in other instances, even quiet walking about often relieves more than resting still or lying down does. The indication, it seems to him, is to lower the head and thorax only, not the head alone, so as to avoid tracheal constriction. This can be done by means of an inclined plane, and by a table he has made himself.

H. A. Hare [764 Jan.,'95; 5 May] has carefully reviewed the work of Howard, and from his studies concludes that the epiglottis is not the cause of the obstruction in arrested respiration in anæsthesia. If, however, the head is extended and simultaneously projected forward, both the tongue and the epiglottis are raised and the soft palate is so drawn as to permit of free breathing through the mouth as well as the nose. As to the question of the various methods of performing artificial respiration, that of Sylvester is believed to be by far the best. It is, however, vitally important to have an assistant grasp the feet and hold them motionless, since in this way the extension and upward traction of the arms above the head elevate and dilate the chest. This is particularly the case in children and persons of small weight, as the lower segment of the body readily follows the chest in its upward movements.

[The posture of the patient during anæsthetization has naturally always occupied the attention of all anæsthetists. Besides the routine rules, various rules for different operations have been suggested. While Lawrie and the Hyderabad Commission contended that the erect was not a dangerous position under chloroform, Leonard Hill has quite recently, working upon physiological lines, shown that the erect or sitting posture does lead to a fall in blood-pressure, and so tend to drain the vital centres. For operations about the mouth, jaws, tongue, palate, etc., full extension of the head upon the trunk has been advocated, and it certainly answers admirably in many cases,—*e.g.*, staphylorrhaphy, for removal of post-nasal adenoid growths, etc. Upon the other hand, it produces some congestion of the head and neck vessels, which in certain subjects induces a very undesirable amount of bleeding. Generally, it may be said that the old teaching is correct, that chloroform should be given only to patients in the horizontal posture. The lateral position is not always possible in stout persons and is prone to end in the very undesirable rolling over of the patient upon the abdomen. In these persons the great weight of the body may seriously hamper the heart if the left lateral position is adopted. There is especial danger of this when there is any effusion in the thorax or abdomen or when much omental

fat exists. Short-necked persons also bear the lateral posture badly. It is wise to place the pillow not merely under the head, but well under the shoulders; in this way just sufficient extension of the head upon the trunk is allowed. This meets MacMunn's views.—D. B.]

Treatment of Collapse During Anæsthesia.

Atropia.—J. B. Blake, of Boston, [99 Sept.27,'94] from a trial of atropia to prevent vomiting after ether, believes that if combined with a minimum amount of ether properly given, and a maximum of care and preparation of the patient before operation, it is probable that ether vomiting can be greatly diminished by its use.

[My impression is that the "minimum quantity of ether" has more to do with the lessening of ether vomiting than has the atropine. With careful preparation and attention to the minimizing the amount of ether given *when once the patient is narcotized*, sickness seldom occurs. Two important points must also be had in regard; these are: (1) care must be taken that the patient does not swallow mucus and saliva impregnated with ether, and (2) he must not be lifted and moved about while he is under ether. However, with some persons, quite severe vomiting will take place, whatever precautions are adopted.—D. B.]

Compression of Præcordium.—C. A. Leedham Green [32 Feb.,'95] calls attention to the fact that, if the difficulty is confined to respiration, the means for its relief are excellent, but that none of these will answer when the heart suddenly fails, because they affect the circulation indirectly. The means now in use—such as hypodermatics of strychnine, ether, inhalations of amyl-nitrite, and cutaneous stimulation—are of use only when the onset is gradual. In the severer forms of heart-failure the complete or almost complete cessation of the circulation and the abolition of all reflex action render their use futile. He therefore recommends the König-Maas system of rapid compression of the præcordium as used in Göttingen. The case in which he tried it was a child 4 months old. The operation of circumcision had nearly been completed when the child became deadly pale, the pupils dilated, and the respiration and the heart's action ceased. The child was apparently dead. The surface became pale and cold, the eyes shrunken, pupils widely dilated, and there was a collection of froth at the mouth. Rapid compression (about 120 per minute) of the præcordium was followed by a faint gasp and ultimate recovery. Seven minutes had elapsed during which neither heart-beat nor respiratory effort could be detected. Sylvester's method, which was first used, was totally inadequate.

Lavage.—A. L. Stavely, of Washington, D. C., [1058 Sept.,'94] reports a number of cases of nausea and vomiting, after the administration of anæsthetics, in which he performed lavage with benefit. He suggests its use in similar cases resisting all other treatment, though it is too severe a measure to be generally adopted.

Nitrite of Amyl.—W. M. Killen, of Belfast, [2 June 29,'95] places great reliance on the immediate use of nitrite of amyl combined with artificial respiration. He has several times seen accidents apparently averted by the use of this remedy, which has the great advantage of acting instantly and of being aided in its entrance into the system by the accompanying artificial respiration. Five years' experience in the giving of various anæsthetics at a local hospital has taught him to rely on two things mainly,—artificial respiration and nitrite of amyl. All other methods of treatment should be secondary and require both more time and assistance from others. The inhalation of the drug should be tried first in cases where cardiac failure is the most threatening symptom.

The value of nitrite of amyl in the treatment of threatened heart-failure during chloroform anæsthesia appears to depend very largely upon the stage when it is administered. According to J. H. Marsh, [6 Dec.7,'95] it is at the initial stage of heart-failure that it is invaluable; after the inhalation of 3 or 4 minims the peripheral vessels relax, the resistance to the discharge of the left ventricle is diminished, and the threatened paralytic overdistension is averted.

[Whatever value nitrite of amyl may possess, it does not, I think, act as an antidote to chloroform. I have found it most serviceable in cases of failure of the circulation arising from prolonged and severe operations, in collapsed conditions, and in fear syncope. Personally, I should say that Nélaton's inversion method is the thing in cardiac failure when there is no pulmonary or venous engorgement, and artificial respiration stands *facile princeps* for cases of failure of respiration when due to narcotizing of the medullary centres. Strychnine given hypodermatically is of greater value when given before the anæsthetic than later. If given when heart-failure and cessation of respiration have occurred, very large doses are requisite.—D. B.]

Rhythmical Traction of the Tongue.—Laborde's method of rhythmical traction of the tongue was successfully employed by Labbé, of Paris, [22 Nov.7,'94] in a case in which flagellation, artificial respiration, and galvanism had been tried in vain. Verneuil [14 Oct.31,'94] also advocated the method, alternated with flagellations of the epigastrium with a wet cloth.

Salt Solution.—Rein, of Moscow, [336 Nos.17,19,'95] advocates infusion of salt solution in heart-failure after chloroform.

Sparteine.—Langlois and Maurange, of Paris, [55 Aug.24; 1 Sept.28,'95] called attention to the tonic and regulating action of sparteine on the heart in chloroform anæsthesia, and stated that Hurtle had shown that oxysparteine exercised a still more energetic action on the heart. Their researches also led them to substitute oxysparteine for sparteine in their clinics. The excitability of the pneumogastric nerve diminishes after injections of oxysparteine and the vascular pressure is maintained at a sufficient tension during a long period of anæsthesia. The drug being somewhat more active than sparteine, the dose for an injection should be smaller. When from $\frac{3}{5}$ to $\frac{3}{4}$ grain (0.039 to 0.045 gramme) of sparteine and $\frac{3}{20}$ grain (0.009 gramme) of morphine are injected an hour before the operation, a rapid narcosis is produced and easily maintained with a little chloroform, if the heart be regular. The same effects, however, may be obtained with oxysparteine alone in doses of from $\frac{9}{20}$ to $\frac{3}{5}$ grain (0.027 to 0.039 gramme).

Stimulants.—The results of the administration of stimulants in the two cases of chloroform narcosis bordering on collapse, described on page E–6, left no doubt in Bedford Brown's mind, judging from the appearance of the exposed brain, [80 Dec.15,'94] that stimulants given in this condition exert a powerful, exciting, and energizing effect, first on the heart, then on the circulation in the brain and medulla; as soon as the medulla—the centre of respiration—is influenced by the alcoholic stimulant, the function of respiration also begins to respond. The author recommends that when stimulants are given, either before or during chloroform narcosis, they should always be given in connection with strychnine, as this combination affords the most potent excitant of the centres of respiration, circulation, and consciousness that we possess.

Poucel [35 Jan.5,'95; 814 Aug.1] for over four years has used, with excellent results, hypodermatic injections of diluted cognac in chloroform narcosis, administered when the face of the patient becomes pale and the pulse weak and small. He uses a mixture of 1 part of cognac and 3 parts of water, of which he keeps a convenient quantity at blood-heat by means of a water-bath. The injections are made into the thigh, 4 cubic centimetres (1 fluidrachm) being first introduced and subsequent injections given if the action of the heart demand it.

Tracheotomy.—Poncet, of Lyons, [211 Jan.13,'95; 80 Mar.15] states that when, under general anæsthesia, there is apparent death, tracheotomy is absolutely indicated; that it is a means of prime importance upon which the surgeon should count and upon which he should always rely when other methods have failed. An anæsthetic should never

be given without considering this aspect of the case,—that is, no matter what operation the surgeon is performing, he should have ready at hand the instruments required for tracheotomy. This operation, which allows of artificial respiration to its fullest extent, or direct insufflation by means of a cannula, and which does not interfere with the rhythmical tractions of the tongue, is likewise indicated in asphyxia from other causes, or in prolonged syncopal conditions, no matter how these may have been produced, as, for instance, apparent death from electrization or from inhalation of toxic vapors or gases.

Gerbaux, of Lyons, [212 Apr.10,'95] describes three cases in support of Poncet's views, one of the patients having been recalled to life more than an hour after apparent death. Tracheotomy, he claims, succeeds at a later period than any other procedure, and the cases published show that a patient apparently dead from an anæsthetic should not be abandoned until tracheotomy has been tried and followed by prolonged artificial respiration or insufflation, if necessary.

[It is difficult to understand how the performance of a tracheotomy can benefit a patient unless the air-passages are blocked by some obstruction. Poncet's cases are very striking, and his reasoning carries weight, even although it appears based upon empiricism. Whether intubation of the larynx or even a simple correction of a faulty position of the head with vigorous artificial respiration would not answer as well as the tracheotomy must for the present remain an open question.—D. B.]

Tapping of Ascitic Fluid.—Patrick Hehir, of Hyderabad, in a case of collapse during anæsthetization [239 June 16,'95] in an old woman upon whom laparotomy was about to be performed preliminary to ovariotomy, tapped the abdominal cavity, at Lawrie's request, and removed two and one-half gallons of ascitic fluid to facilitate the efforts to obtain artificial respiration, which until then had been futile. The patient had ceased to breathe for fully six minutes, while the pulse continued to beat for two minutes after the respiration had stopped. Had the pulse been taken as a guide, says the author, the loss of time would doubtless have caused the death of the patient. The recovery is mainly ascribed to the removal of the fluid, which at once gave a larger breathing surface and removed the pressure on the diaphragm and the pericardial sac.

[The desirability of rapidly removing fluid from the abdomen or thorax when chloroform death appears imminent and artificial respiration becomes necessary must commend itself to every practical anæsthetist. On the other hand, I have several times seen alarming cardiac arhythmia arise from interference with the intra-

thoracic and intra-abdominal pressure. This contingency should always be borne in mind when rapid extrusion of fluid is practiced. In cases of very stout people with pendulous bellies and barrel-shaped chests the performance of artificial respiration by Sylvester's method is both difficult and, as a rule, ineffectual. In such cases the following modified plan will prove more useful: The upper air-passages being cleared, the patient's arms are drawn from his sides, and the upper half of the thorax is grasped by the two hands, while rapidly-repeated vigorous thrusts are made downward and inward. This will, as a rule, ventilate the lungs more thoroughly than other methods. Laborde's method—of which personally I have had little experience save on the lower animals, when it failed in my hands—appears to be practically the same or to be based upon the same reasoning as the plan suggested some years back by Sir Joseph Lister. He found that drawing the tongue forward had little effect, but, if that organ were seized with a pair of bull-dog artery-forceps and dragged out of the mouth and traction made upon it, respiration frequently became initiated. When the mechanical stimulation was neglected, no return of breathing took place. In cases of interference with breathing I have frequently found that dragging in this way upon the tongue will tend to restore natural chest movement. The same procedure is of value in spasmodic fixation of the glottis.—D. B.]

ANALYTICAL INDEX

AND

CYCLOPÆDIA OF TREATMENT,

BY

CHARLES E. SAJOUS, M.D.,

PARIS.

PRESENTING IN A CONCISE FORM THE PROGRESSIVE FEATURES OF PRACTICAL VALUE IN

PATHOLOGY, DIAGNOSIS, AND TREATMENT,

AND THE

EDITORIAL COMMENTATIONS CONTAINED IN THE 1896 ISSUE

OF THE

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ANALYTICAL INDEX AND CYCLOPÆDIA OF TREATMENT.

By CHARLES E. SAJOUS, M.D.,
PARIS.

ABDOMEN.

CONTUSION.

DIAGNOSIS. The diagnosis of intestinal rupture is difficult after severe contusion of the abdominal wall. In simple cases, vomiting repeated but two or three times; when intestine ruptured, the vomiting is persistent and intractable and liver-dullness is absent. *Berndt*, iii. C-105, 106.

Symptoms of rupture do not always convey the seriousness of the condition present. Case cited showing no decisive symptoms; crackling over seat of injury led to a diagnosis of rupture; colon found torn and its contents in the abdomen. *Hitchcock*, iii. C-106.

Patient able to walk to hospital notwithstanding intestinal contents in peritoneal sac, perforation of ileum, complete division of jejunum. *Lambret*, iii. C-106.

Gravest internal injuries may co-exist with no external evidence of mischief. Typical cases. *Bryant*, iii. C-106, 107.

Diagnosis of intra-peritoneal lesions difficult. Alteration in quantity and quality of urine sometimes of distinct value. Intervention should depend upon the gravity of the symptoms. A man kicked in the belly by a horse has one chance out of three of dying. More than half of personal cases saved by prompt intervention. Latter should be practiced when sharp local pains and rapid elevation of temperature present. *Kirmisson*, iii. C-107.

Case of contusion of abdomen with rupture of thoracic duct ending in recovery without operation. *Manley*, iii. C-108.

Importance of sympathetic nervous system, the largest distribution of which is in the abdominal cavity. In simple contusion there is absence of severe pain, constant vomiting, anxious expression, presentiment of impending death, evidence of loss of blood. Meteorism due to paralysis of muscular coat of bowel, consequent upon concussion of plexuses. *J. B. Deaver*, iii. C-108.

TREATMENT. In dogs with intestinal perforation there is constriction of the intestine above and below the point of injury, and swelling of the intestinal loop at the point of lesion. Lesions are always superposed in the direction of the spine; so that by going from injured portion of wall toward spine wounded loops always found. *Février and Adam*, iii. C-108, 109.

Exploratory laparotomy in median line. Intervention superior to expectant plan; mortality 66 instead of 97 per cent. *Balladur*, iii. C-109.

Effusion into pelvic cavity may be avoided by practicing drainage at most inclined point. *Frœlich*, iii. C-109.

PENETRATING WOUNDS.

DIAGNOSIS. Shock of no diagnostic value in differentiating between penetrating and non-penetrating wound of abdomen. Serious visceral lesions may be accompanied by little or no shock, while insignificant wound of abdominal wall may be attended by profound shock. In bullet and other injuries maximum degree of shock reached early, while depression, incident to hæmorrhage, slower in its advent. *H. M. Taylor and Landon B. Edwards*, iii. C-100.

Case showing that extensive injuries may give rise to no active symptoms at first. *Sonnenburg*, iii. C-101.

Fatal cases of marked laceration of liver and bowel in which there was neither shock, hæmorrhage, nor high pulse. *W. L. Robinson*, iii. C-101.

Case showing no trace of the course taken by projectile, and for forty-eight hours no inflammatory phenomena, notwithstanding which death from peritoneal septicæmia occurred within a few hours. Five perforations found in intestine. Only chance would have been immediate intervention. *Schwartz*, iii. C-101, 102.

In all cases an exploratory incision should be made. *Simmons*, iii. C-102.

Case ending fatally through too limited parietal incision. Longer incision would have permitted more extensive irrigation and prevented peritonitis, which developed in upper portion of abdomen. *Dubujadoux*, iii. C-102.

Thirteen cases showing that laparotomy is always indicated in penetrating wounds of abdomen, even if only done for exploratory purposes. *Gulotta*, iii. C-102.

ABDOMEN (continued).

PROGNOSIS. Case showing that, notwithstanding great injury, recovery may be obtained under appropriate treatment; sixteen bullet-holes of the intestines found and closed. *Bennett*, iii. C-104.

Case of recovery after large wound of the abdomen through which protruded 10 to 12 feet of bleeding small intestine covered with dirt, perforated and torn in 8 or 9 places. *Shepherd*, iii. C-104, 105.

Rapid recovery in a man in whom pericardium and lungs penetrated, besides three wounds in the abdomen. *Scott*, iii. C-105.

Case of pregnant woman shot in abdomen, the projectile penetrating gravid uterus. Recovery of patient. *Albarran*, iii. C-105.

Case with 6 intestinal perforations and wound in bladder 4 centimetres long. Resection of 62 centimetres of small intestine. Slight cystitis; recovery uneventful. *Rieder*, iii. C-105.

Laceration of walls of stomach about 4 inches in length involved serous and muscular coat, besides an active smaller opening. Recovery. *Burr*, iii. C-105.

Study of 56 cases showing that proof of penetration through peritoneum should be sought by enlargement and careful investigation of original wound. Penetration having been found, immediate enlargement of the wound should be made. *C. L. Scudder*, iii. C-102.

Great importance of always opening the abdomen in cases of penetrating wounds. *Cabot*, iii. C-102.

Gunshot wounds show higher mortality than stab wounds, but stab wounds which penetrate viscera show a mortality equally high. Wounds of small intestine usually fatal. Wounds of stomach may be survived. Early death after accident is not from shock, but from sepsis; the latter only occurs when extravasation takes place. *Jas. G. Mumford*, iii. C-102, 103.

TREATMENT. Flushing of abdomen, when presumably it is infected, increases likelihood of spreading infectious process to remote regions ; wiping out cavity to be preferred. *J. W. Elliot*, iii. C-103.

If really septic material has been introduced in the abdomen, washing out does not save patient ; principal advantage of irrigation is to remove matter, small clots, etc., which may decompose. *Cushing*, iii. C-103.

Irrigation of peritoneal cavity not proper in cases in which local septic processes already exist, but, when case seen early and septic process not started, object is to remove clotted blood, fæcal matter, etc., and nothing better than irrigation with a bland solution. *Cabot*, iii. C-103.

In appendicitis in which general peritoneal cavity invaded, germ-colonies are spread to other parts by irrigation. *M. H. Richardson*, iii. C-103.

Point of interest suggested by Scudder is the occurrence of inflammatory processes in the omental stump late after the operation. Symptoms vary according to the degree of inflammation, and are due to sepsis. Tying large masses of omentum in one ligature, etc., leaving considerable omentum, may end in local microbiotic process. *Lothrop*, iii. C-103, 104.

ABDOMINAL OPERATIONS.

GENERAL TECHNIQUE.

MURPHY BUTTON. Analysis of reported cases in which Murphy button used. Gastro-enterostomy : 27 cases, 9 deaths. Cholecystenterostomy : 38 cases, 1 death. Its greatest value is in intestinal approximation. 48 cases of resection for non-malignant conditions, 3 deaths ; 30 cases for malignant disease, 7 deaths. *Murphy*, iii. C-114, 115.

Segment of duodenum removed, post-mortem, three months after a gastro-enterostomy in which button used. Opening not contracted by a hair's breadth. In 8 cases no obstruction: not the slightest contraction. *Chamberlin*, iii. C-115.

In 8 cases no obstruction 10 weeks after operation ; not the slightest contraction. *Willy Meyer*, iii. C-115.

Autopsy of a case operated for a malignant stricture three months before. Contraction of opening made by button only ¼ inch. *C. A. Morton*, iii. C-115, 116.

Case in which the cut end of the ileum was joined to side of sigmoid flexure. Forty-seven days later contraction to half of the original diameter. *Keen*, iii. C-116.

Case in which enterocolostomy performed and largest-sized Murphy button employed. Three months later site of anastomosis so small as to barely admit the tip of the index finger. *Parkhill*, iii. C-116.

Necropsy in a case of cancer of the colon and stomach, showing that the button had fallen into the bowel on the proximal side of the stricture and had become imprisoned. This might be overcome by making distal flange of button slightly larger than the proximal. *Robson*, iii. C-116.

Suggestion to make expanded part of button of decalcified bone, thus enabling a larger size to be used. *Paul Bush*, iii. C-116.

Case of delay of 66 days in passing the button. Cases in which peritonitis present are unfavorable for satisfactory union. *Donald D. Day*, iii. C-116.

Mean calibre of human intestine, 27 millimetres. Murphy button too bulky for the small gut in general. *Chaput*, iii. C-117.

Opposed view. Any failure with the button attributable to faulty technique.

When well adjusted it prevents escape of liquid from intestine. *Quénu*, iii. C-117.

Possible danger of gangrene from use of a button of too large size, and of obstruction if one too small be used in the large intestine. When button employed in latter, repeated small doses of a cathartic on third or fourth day, to begin with. *Willy Meyer*, iii. C-117.

Case in which free opening of wound on sixth day showed sloughing of the intestine on either side of the button and extravasation of fæces in the region of the peritoneum. Another autopsy showed no peritonitis, but empty colon below button and a hard plugging of fæces in the button which formed complete obstruction. Case in which button had fallen back into the loop of bowel on proximal side of union. *Abbe*, iii. C-117.

Case of cholecystenterostomy with Murphy button in which, fifty-two days after operation, button had not appeared. It may have fallen into large cyst present. *Swain*, iii. C-117.

In a case of cholecystenterostomy with Murphy's button, hæmorrhage fourth day. Large clot found at the seat of anastomosis. The button had cut through the gall-bladder. *Shepherd*, iii. C-117, 118.

The button should never fit tightly. In all doubtful cases gauze drainage from the line of union should be employed. Main danger-signal after operations,—persistent vomiting. *Howard Lilienthal*, iii. C-118.

[Since the above was written, Murphy has stated that the operation of cholecystenterostomy in malignant disease is very unsatisfactory. When he finds a large carcinoma of pancreas, duct, or neck of gall-bladder he abandons the operation.—Ed.]

Case of strangulated inguinal hernia in which it was impossible to reduce bowel after herniotomy. Two feet of small intestine excised. One month after anastomosis by means of Murphy's button, recovery rapid and complete. *J. R. Johns*, iii. C-118.

Case of strangulated hernia in which 5 inches of gangrenous bowel had been resected; anastomosis by Murphy's button. Death. Weight of button had caused it to gravitate to the bottom of the pelvis, and caused a sharp kink at the site of the anastomosis. *Abbe*, iii. C-118.

Button as now manufactured of nickel-plated brass. Substitution of aluminium. *W. W. Stewart*, iii. C-118.

[Aluminium dangerous for the purpose; secretions cause it to disintegrate in the form of acicular scales.—Ed.]

Dangers of the Murphy button: occasionally retained; spring of button sometimes too strong and cuts through intestine; weight may anchor bowel in flexed position; liable to become plugged with hard fæcal matter; sharp edges of lateral openings liable to cut through the coats of the intestine. Maunsell's method preferred. *Wiggin*, iii. C-119.

Bone plates, metal buttons, etc., rather a disadvantage than an advance as far as patient is concerned. *König*, iii. C-119.

When the patient is capable of sustaining a long operation and the surgeon possesses exceptional skill, anastomosis by suture is the ideal method. In hands of average surgeon Senn's plates are to be preferred. Use of Murphy's button restricted to those cases in which it is necessary to hasten in order that the patient may survive the shock. *Dawbarn*, iii. C-119.

Opposition to view that button is not essential to the experienced surgeon. The chief difficulty is not so much in absolute intestinal coaptation as in the steps of the operation which precede this final stage. *James Bell*, iii. C-119, 120.

NEW PROCEDURES AND INSTRUMENTS. Modification of operation of enteroplasty for simple stricture of intestine. Successful use of decalcified-bone bobbins. Advantages: Rapidity of execution, immediately patent and efficient channel, protection to the line of sutures. *Robson*, iii. C-120.

The two ends of a divided intestine can be united without danger by means of a cylinder cut out of a potato or a turnip. *Landerer*, iii. C-121, 122.

Metallic cylinder upon which ligature *en masse* of two ends may be practiced as substitute for the Murphy button. *Duplay and Cazin*, iii. C-123.

Maunsell's operation, slightly modified, preferred; 4 fixation stitches, instead of 2, before invaginating upper into lower end. *Ullmann*, iii. C-123.

In circular suture Hagedorn's needles of medium size preferred on account of ease with which they can be handled. Suture made at separate points 5 or 6 millimetres from resected edge. *Bier*, iii. C-123, 124.

New method of closing abdominal wound to diminish the liability to hernia. *Waldo*, iii. C-124.

Needle with the eye closed by a spring, which threads the needle when pressed upon. *Hauchon*, iii. C-124.

Improved metal tube for draining abdominal cavity after lavage. Lower end inclosed in a cage, guards tube laterally, protects lower extremity. *Kellogg*, iii. C-124.

Light clamp for preventing the escape of intestinal contents while performing anastomosis. *McLaren*, iii. C-125.

POST-OPERATIVE INTESTINAL OCCLUSION. Obstruction due to adhesions causes between 1 and 2 per cent. of deaths following ovariotomy and other operations. *Rohé*, iii. C-54.

31 cases of intestinal obstruction with 5

ABDOMINAL OPERATIONS (contd.). deaths in 421 abdominal sections and 148 extirpations of uterus through the vagina. *Klotz*, iii. C-54.

Number of post-operative occlusions due to physiological impermeability of left subcostal angle of colon. During laparotomy it is advisable to displace any portions of small intestine that may threaten to compress the colon at this angle. *Adenot*, iii. C-54, 55.

Among other causes of intestinal obstruction are paralysis of muscles, spasmodic contraction, paralysis from operation on gut. Careful auscultation determines absence of peristalsis. Presence or absence of peristalsis in early obstruction of more importance than any one sign or symptom known. *Murphy*, iii. C-55.

Two cases following laparotomy. Symptoms of obstruction appearing immediately after operation. Nutrient enema retained without great difficulty. Gradual improvement; patient soon out of danger. Asepsis materially reduces cases of obstruction. *Stumpf*, iii. C-55.

In 850 operations with exclusively dry aseptic measures to abdominal cavity only 1 death from obstruction. *Zweifel*, iii. C-55.

Case of obstruction. At autopsy obstruction found to be due to adhesion of a loop of small intestine to pedicle, resulting from ablation of an ovarian tumor. *Ziegenspeck*, iii. C-55, 56.

After 443 operations prior to antisepsis 2.25 per cent. followed by intestinal obstruction. After antisepsis in 348 operations only 0.57 per cent. *Tauffer*, iii. C-56.

Abdomen not to be closed up after removal of strangulation without methodical examination of intestine. *Commandeur*, iii. C-56.

Value from diagnostic stand-point of purgative the day after the operation; also prevents from the outset the arrest of fæcal matter. If operation necessary, laparotomy; region of operation first explored; if nothing found, left angle of colon then examined. *Legueu*, iii. C-56.

ABORTION.

TREATMENT. For many cases interference necessary because we deal with conditions which favor a retention of secundines; a broken ovum; a displaced, a septic or otherwise diseased uterus. Temperature of 101° F. always a distinct indication for immediate cleansing out of the uterus; large, hot, antiseptic, intra-uterine injections should follow this, and the uterus be drained by gauze. *E. J. Hill*, ii. G-12, 13.

When infection has not yet taken place, finger quite sufficient. If infection present, better to remove not only fœtal parts of ovum, but maternal decidua as well; use of a large curette advisable to avoid perforating the uterus; danger of puncturing uterus by no means imaginary; most important to thoroughly douche out the uterus and to introduce iodoform suppository and iodoform gauze; permitting process of abortion to drag on for days responsible for most deaths. *Noble*, ii. G-13, 14.

Thirty-five cases of curettage; use of forceps or of dilating instruments objected to. *Audebert and Chaley*, ii. G-14.

Perforation of the uterus after abortion with prolapse of the intestine. One case by introduction of catheter with its stylet; abdominal section; recovery; other cases ruptured by surgeons using dilators. The uterus after abortion is particularly liable to rupture by dilatation or by rough curetting. *Matthew D. Mann*, ii. G-14.

A case of curetting after abortion in a double uterus. *George Edebohls*, ii. G-14, 15.

Whenever abortion takes place none of the tissues should be left in the uterus. 1. At 4 weeks best to keep down hæmorrhage and to wait for nature to act; if interference necessary, decidua to be removed, using the curette. 2. At 6 and 8 weeks chorion causes most trouble; finger or curette used and strip of iodoform gauze introduced to fundus. 3. At 10 and 12 weeks fœtus comes first; other tissues apt to need artificial removal; finger best; gauze as before; small doses of ergot for twenty-four hours. 4. In cystic degeneration cervix dilated with Barnes's bag; contents scraped out with finger; gauze introduced and left twenty-four hours; ergot. 5. In uterine mole uterus to be left alone, except if hæmorrhage; mole comes away whole, leaving cavity clean. *Edward Ayers*, ii. G-15.

DRUGS DURING PREGNANCY. Although quinine appears to have but little oxytocic action in some, in others it excites uterine contractions, specially in delicate, nervous, and anæmic women; should not be given in large doses unless with some narcotic that will act as sedative upon the uterus. *Coromilas*, ii. G-18.

To replace quinine, when indicated for malaria, phenocoll, which, while efficient for malaria, has no action on the uterus; 22½ grains divided in four cachets given five, four, three, and two hours before febrile paroxysm. *Titone*, ii. G-19, 20.

Thuja occidentalis contains an active principle similar to the one contained in sabine. *Kalt*, ii. G-20.

ABORTION.

THREATENED. Absolute mental and physical rest in bed; light and cool food. Tinct. of opium, 12 drops every 2 hours per mouth; or extract of opium, 1 grain in a suppository every 3 hours. If an idiosyncrasy preclude the use of opium, chloral hydrate, 10 grains, and bromide of potassium, 20 grains, every

2 hours, then every 3 hours. If the pain is severe, morphia, $\frac{1}{4}$ grain, and atropia, $\frac{1}{60}$ grain, hypoderm. The fluid extract of viburnum prunifolium, $\frac{1}{2}$ to 1 drachm every 3 hours, or 10 drops every half-hour, with chloral hydrate, 8 grains.

INEVITABLE. All the foregoing measures contra-indicated.

HÆMORRHAGE. Patient placed in Sims's position; all clots removed; vagina then packed with iodoform gauze or baked cotton-wool. If bleeding continue, vaginal douches of hot alum solution, 1 ounce to the pint; packing renewed and 3 drachms of ergot injected into the rectum. If alarming, uterine canal to be packed with small pledgets of iodoform cotton or gauze.

EXHAUSTION FROM HÆMORRHAGE. Rectal injections of 1 to 2 quarts of cool saline solution; or careful injection of hot (120°F.) saline solution into femoral artery (middle of Poupart's ligament), using large hypoderm. needle connected with Davidson syringe. Subcutaneous and rectal saline injections, simultaneously, if need be. Hypoderm. injections of strychnia, $\frac{1}{60}$ grain, enhance the action of injections.

DELAYED. Expectant treatment exposes patient to dangerous hæmorrhage and septicæmia; hence early active measures. As soon as hæmorrhage is controlled and the os sufficiently patent, the finger to be introduced, then hooked, and the uterine contents are evacuated.

If adnexa are not expelled in 24 hours, injections of hot carbolized water into the uterus, between its walls and the ovum, every 3 hours, using a Bozeman catheter. If the os is not dilated, a piece of iodoform gauze or an iodoform bougie can be inserted; in from 12 to 24 hours the finger can generally be introduced and the adnexa removed. If this is difficult, a blunt curette may be employed instead of the finger.

When the curette is used the softened condition of the uterine tissue should be borne in mind; death from perforation reported. Antiseptic douching—3-per-cent. carbolic-acid solution—of endometrium after curetting. Packing of uterine cavity with iodoform gauze *after* curetting has caused peritonitis.

Too copious use of corrosive-sublimate solution for injection has caused death. If the cervix will not yield to simple measures, Hegar's, Ellinger's, or Barnes's dilator may be used.

INCOMPLETE. Fragments of placenta or other adnexa left in the uterus may rapidly give rise to foul discharge and grave septic symptoms. Patient to at once be placed in Sims's position and given an anæsthetic, if necessary; endometrium thoroughly cleaned and curetted, then washed out with hot 1 to 5000 corrosive-sublimate solution. No ergot until the uterus is thoroughly emptied. Careful cleansing of external genitals and application of compress of carbolized cotton to the vulva. Lysol, in 1-per-cent. solution, highly recommended for injections in infectious cases.

HABITUAL. Cause to be carefully sought after and removed, if possible. Viburnum prunifolium, $\frac{1}{2}$ to 1 drachm of the fluid extract twice daily. Asafœtida, 1 grain in pill three times daily, as soon as pregnancy is suspected, and gradually increased. Chlorate of potassium, 15 to 30 grains daily. Drugs to be avoided during pregnancy: cantharides, pilocarpine, strychnine, erigeron, elaterium, jalap, podophyllin, aloes, senna, scammony; violent purgatives in general, especially those likely to cause engorgement of the hæmorrhoidal vessels. [EDITOR.]

ABSCESS.

ACUTE. Rest and elevation of the part; elimination of all irritating conditions. Salines if purgation necessary. Easily assimilable food, but not low diet; avoidance of stimulating beverages, alcoholics, coffee, etc. If seen early, suppuration can sometimes be avoided.

Internally: Tinct. aconite, 1 to 3 drops every hour, closely watched; or tinct. veratrum viride, 1 drop every hour, three or four times,—*i.e.*, until pulse slower, skin moist, and slight nausea experienced. Sulphurated lime, $\frac{1}{10}$ grain every hour; or pill—of quinine, 1 grain; ext. nux vomica, $\frac{1}{4}$ grain—every three hours.

Externally: Surface cleansed with antiseptic soap and sprayed with 2-per-cent. carbolic-acid solution or hydrogen peroxide every 2 hours for 10 minutes, or compresses dipped in hot 1 to 4000 corrosive-sublimate solution. If abscess at extremities, same solutions in form of bath, used several hours at a time. If impracticable, nitrate-of-silver solution 30 grains to the ounce, or pure tinct. of iodine, applied with camel-hair pencil frequently. If surface tender, belladonna-ointment; a piece the size of a pea rubbed into the skin until dry, and renewed every three hours. If pain very severe, galvanism; anode sponge, dipped in 10-per-cent. solution of cocaine, applied 5 minutes every 3 hours, current not exceeding 5 milliampères. During intervals warm fomentations with pure, borated, or camphorated water, or infusion of poppies.

If suppuration is unavoidable, abscess to be opened as soon as the presence of pus is determined. To anæsthetize surface, 1- to 5-per-cent. solution of cocaine, 20 drops subcutaneously. near abscess; spray of ether; chloride of methyl from glass bulb; bromide-of-ethyl vapor, the latter being especially valuable; the parts turn white when ready, usually in two minutes. Seltzer

ABSCESS (continued).
water spurted over the surface sometimes sufficient.

If abscess deep-seated, skin and fascia only to be cut, using grooved director to reach the pus. Opening kept patent with forceps; cavity thoroughly emptied and syringed out with 1 to 4000 corrosive-sublimate solution until fluid used comes out perfectly clear. Pressure with fingers to be avoided. Incision and surroundings then carefully washed with same solution, and aseptic drainage-tube inserted. Wound dusted with iodoform or dermatol, antiseptic dressing applied, exerting slight pressure with bandage. If abscess deep, drainage-tube to be shortened daily; if superficial, it can be withdrawn the second day.

COLD. When no local inflammation indicates that abscess soon to open, fluid withdrawn with large aspirator; 5-per-cent. solution carbolic acid injected, then aspirated, renewing procedure until solution withdrawn perfectly clear. Lister bandage with slight pressure. Five days later same treatment. About five sittings required (Bœckel). May be used in the same way, but injection not to be renewed while iodoform excreted with urine. Iodoform, 1 part; ether, 5 parts; distilled water, 5 parts (Mosetig-Moorhof, Verneuil). Iodoform, 1 part; glycerin, 10 parts—less painful (Billroth). Olive-oil, 10 parts (Bruns). Intoxication prevented by sterilizing iodoform and excipient—except ether—by heating at 212° F. separately (Tillmann) or by limiting injection to 3 ounces of 5-per-cent. solution. May also be used in the same way: 4-per-cent. solution of boric acid (Ménard), or naphthol and camphor, 1 part each. Cannula-holes to be closed with antiseptic collodion. Thirty sittings may be required. (See Adenitis.)

When local inflammation and opening of abscess probable, free incision, thorough scraping of walls with Volkmann's curette to transform suppurating surfaces into bleeding ones; cavity cleansed with 5-per-cent. solution carbolic acid, long drain applied, and wound stitched as far as drain. Antiseptic dressing (Volkmann, Trélat, Pozzi). Cavity may be washed out with peroxide of hydrogen 10-per-cent. solution, or packed with iodoform gauze. Removal of pyogenic sac by decortication: Free incision; sac detached with finger or spatula and removed entire; cavity closed immediately (Lannelongue). Procedure facilitated by filling wound with paraffin; sac then removed like a lipoma (Cazin). Necrosed or detached bone to be looked for in all cases. Strict antiseptic precautions imperative to avoid mixed infection (bacilli of tuberculosis and pyogenic cocci). Preliminary precautions to meet violent hæmorrhage due to vascular erosion. Lesion a tuberculous one; general system treated accordingly. Nutritious food, including free supply of milk and eggs, pure air, sunlight, sea-air if possible. Tonics and alteratives: Codliver-oil and hypophosphites, iodine, iodides, arsenic, quinia, strychnia.

PSOAS. Abscess opened in loin and groin when possible. In loin, incision through external and internal oblique, transversalis, and lumbar fascia, along outer edge erector spina to edge of quadratus lumborum. Latter muscle and transversalis fascia divided level of tip of second or third lumbar transverse process, avoiding lumbar arteries. Sheath and psoas perforated with finger or trocar. Counter-opening below Poupart's ligament to form tunnel, into which large-size drainage-tube inserted. Replaced, later on, by a tube at each end to obtain obliteration, beginning from centre of canal. Aspiration and injection of iodoform emulsion, or incision, scraping, and drainage, as in tuberculous abscess. Strict antisepsis to avoid hectic fever. If one incision preferred, loin to be selected. [Editor.]

ACETANILID POISONING.

Case of infant, 16 days old, in which powder, of equal parts of boric acid and acetanilid twice daily for 3 days, caused distinct cyanosis. *Randal C. Rosenberger*, v. A-5.

Induces severe symptoms of intoxication more frequently, perhaps, than any other of the aromatic series. Fall of temperature, accompanied by profuse perspiration; may attain maximum in 2 or 3 hours and finally bring on depression and collapse; but may send temperature up. Prolonged administration may give rise to decided anæmia. *British Medical Journal*, v. A-5.

TREATMENT. Cardiac, respiratory, and vasomotor stimulants are imperatively demanded. Ether hypodermically has been most frequently used, but belladonna best fills the indications. This drug, with external warmth and some more direct cardiac stimulant, seems the best remedy for overaction of acetanilid. J. E. Gibbons administered tincture of belladonna, 4 drops every half-hour for 4 doses, then every 2 hours for 8 doses. [Editor.]

ACETONURIA. See Urinalysis.

ACNE.

Meibomian form usually found on excretory canal of Meibomian gland, inside the lashes; gland emptied by surgical intervention. *Valude*, iv. A-1.

Professional form peculiar to workers in paraffin; eruption papular, furunculous, or acneiform; affects hairy portions of skin. *Gervais*, iv. A-1, 2.

[As in artificial eruptions, individual predisposition here naturally plays a most

important rôle. L. Brocq, Assoc. Ed., iv. A-2.]

Severe case of acne scrofulosorum in girl with no tubercular family history, but with enlarged cervical glands; acne pustules and comedones extremely numerous, developed in crops, suppurated freely, left deep livid-blue scars, most noticeable over buttocks and thighs. *J. J. Pringle*, iv. A-1.

Case of uncommon acne showing, in addition to common polymorphous acne, polycystic patches,—small, horny elevations situated at pilæ infundibula. *Tenneson*, iv. A-2.

Cases almost similar seen; concretions dark and found only on lumbar region; glands react in a special way toward microorganism of acne; name "acne kerata." *Hallopeau*, iv. A-2.

Two varieties to be distinguished in Hardy's acne kerata: (1) comedones arranged in groups, progressive, predominance on posterior border of axillæ and dorsal aspect of limbs; (2) preference for sides of dorso-lumbar region, dryness of comedones, indefinite duration. *Hallopeau and le Damany*, iv. A-2.

[These forms of acne need complete revision; communications based on one or two isolated cases, far from elucidating subject, only tend to obscure it. There are dermatoses which may take the form of what is called acne kerata; in the same way circinated seborrhœic acne of the thorax, called by Bazin acneic eczema, may sometimes be manifested in the form of miliary papules, horny and disposed in a circinate manner about the interscapular space, more rarely in the middle of the chest. Acne scrofulosorum may also, in certain cases, assume identical appearances. All these cases should be seriously analyzed and discussed by means of collective research. L. Brocq, Assoc. Ed., iv. A-2.]

TREATMENT. Sulphur dissolved in benzin to increase penetrating power and dissolve fatty elements very effective. *Anonymous*, iv. A-3.

Combination of the iodides and bromides of potassium with soap, latter possessing keratolytic qualities. Two varieties: strong soaps, containing from 2 to 6 per cent. of sodium iodide and from 1 to 3 per cent. of potassium iodide; weak soaps, containing but from 1 to 3 per cent. of potassium iodide and bromide. Useful to allow suds to dry upon site of application. *Bardach*, iv. A-3.

[New treatments should be used with much prudence and with due thought to the susceptibility of the patient; there is a tendency to reject preparations of the iodides and bromides in acne, because these substances cause acne in many persons; yet in some rare cases I have personally noted improvement in acne to follow the use of minute doses of sodium or potassium iodide and of applications of tincture of iodine; it must never be forgotten, however, that idiosyncrasy may play a most important part in any medication. L. Brocq, Assoc. Ed., iv. A-4.]

ACONITE POISONING.

Markedly toxic effects from a dose of 5 drops of tincture. *J. Dickinson Leigh*, v. A-6.

Danger of drawing conclusions from experiments on small animals and applying them to large ones shown. $\frac{1}{3}$ grain of aconitine thought safe for a horse, whereas half that dose fatal. Illogical also to calculate toxicity of poison by weight of animal, and still more to draw conclusions as to one species from experiments on another. *Weber*, v. A-6.

TREATMENT. If patient seen at once after ingestion, apomorphine, $\frac{1}{12}$ to $\frac{1}{8}$ grain hypoderm., or other emetics: Mustard (tablespoonful in hot water, 1 to 2 grains), tartar emetic, or sulphate of zinc, 15 to 30 grains. Stomach-pump preferred. Then tinct. of belladonna, 10 minims every two hours, with continued frictions of extremities with warm linen; head low, and hot-water baths from axilla down. Patient kept motionless even during emesis, his head being slightly turned and dejections received upon a towel.

If patient seen late and poison absorbed, pulse very week and rapid, stomach-pump only to be used, and tinct. digitalis, 20 minims, injected hypoderm. Stimulants, brandy and strong coffee per mouth, freely administered. If breathing fail, hypoderm. injections of ether, or brandy, or whisky; inhalations of nitrite of amyl, and artificial respiration. [Editor.]

ACROMEGALIA.

ETIOLOGY AND PATHOLOGY. Two cases, one having temporarily suffered from exceedingly-acute cephalalgia. *Kalindero*, ii. C-41.

Case in which popliteal space showed a cystic tumor communicating with joint, latter containing, besides synovial fluid, five small, solid masses. *Park*, ii. C-41.

Three cases. In one retraction of palmar aponeurosis and dullness at right apex. *Murray*, ii. C-41.

In two women premature cessation of menses and hypertrophy of pituitary body. *Ransom*, ii. C-41.

Case of congenital hemihypertrophy. *Adams*, ii. C-41, 42.

Case complicated by exophthalmic goitre and glycosuria. *Lancereaux*, ii. C-42.

Ocular disturbances observable: thickening of eyelids, prominence of orbital ridges, exophthalmia, periorbital pains, hyper-

ACROMEGALIA (continued).
secretion of tears, pupillary disturbances, nystagmus, etc. *Hertel*, ii. C-42.

Disease partly caused by changes of pituitary body. At first hypertrophy of gland with exaggeration of functions; later on, abolition of functions. *Tamburini*, ii. C-42.

Acromegalic patient suffering from paralysis of right oculo-motor nerve, gray atrophy of discs, and hemianopia. Improvement after mercurial inunction. *Schlesinger*, ii. C-42.

Hypertrophy of pituitary body with compression of chiasm. *Benson*, ii. C-42.

Case associated with giant-growth. Acromegalia is giant-growth in the adult, while giant-growth is acromegalia of adolescence. *Brissaud and Meige*, ii. C-42, 43.

Case of progressive partial giant-growth in girl of 8 years. In congenital giant-growth usually hand, foot, or finger increased in size. Giant-growths of entire extremity uncommon; crossed giant-growth exceedingly uncommon. *Adler*, ii. C-43.

Case of hereditary syphilis presenting great length of diaphysis of long bones, wrist, elbow. *Nobl*, ii. C-43.

Case suggesting influence of traumatism upon development of acromegalia and diabetes. *Marinesco*, ii. C-43.

Case in which trophic lesion was analogous to acromegalia; chief symptom gradual, progressive enlargement of head and neck. Denomination of "megalocephalia" proposed. *M. Allen Starr*, ii. C-43.

Autopsy of a giantess. Main points: hypertrophy of pituitary body, enormous pituitary fossa. *Hutchinson*, ii. C-43.

Case following excessive weakness due to parturition. *Middleton*, ii. C-43.

Typical cases of acromegalia. *Bullard*, *Unverricht*, *Acchioté*, *Herman C. Gordinier*, ii. C-44.

TREATMENT. Case treated by extract of pituitary body; no appreciable result. Analogy between myxœdema and acromegalia suggesting thyroid gland; rapid improvement. *Caton*, ii. C-45.

ACTINOMYCOSIS.

ETIOLOGY. Occurs most frequently among workers in grain, who are in the habit of chewing bits of hay, grain, etc. Case caused by a piece of oat-chaff, which had entered through the mucous membrane of the mouth. *E. Hummel*, iii. L-33.

Undoubted influence exercised by iodide of potassium countenances suspicion that many patients, supposed to be syphilitic, have been really actinomycotic. *Poncet*, iii. L-34.

Case extensively involving the skin; local characters: mainly the presence of large sarcomatous-looking growths, ulcerating at various points, situated upon hard, brawny, and deeply-undermined skin; regarded as actinomycotic invasion through respiratory tract; most remarkable degree of improvement under iodide of potassium. *J. J. Pringle*, iv. A-4.

TREATMENT. Iodide of potassium, ½ to 1½ drachms a day, acts by modifying the anatomical elements and preparing them for the defense of organism, and not by killing the germ of the disease. *Dubreuilh and Frèche*, iii. L-34.

Iodide of potassium does not form an unfavorable culture-medium. Evident that remedy does not act directly on the diseased tissues, but upon anatomical elements. *Bérard*, iii. L-34.

Cases in which complete recovery obtained by means of iodide of potassium. *Zechmeister*, *Van Arsdale*, iii. L-34.

Four cases of cutaneous actinomycosis completely cured by potassium iodide, 30 grains daily. *Monestié*, iv. A-4, 5.

Chrysarobin-resorcin and chrysarobin-resorcin-ichthyol plasters, occasionally with salicylic acid, in two cases; recovery. *A. Staub*, iv. A-5.

[The sudden increase in number of cases doubtless due to the fact that disorder was not recognized in the majority of patients until recently. Farmers should be warned against the habit—so common among them—of chewing bits of straw, wheat, oat-chaff, etc.,—the most prolific cause of the disease. E. Laplace, Assoc. Ed., iii. L-34.]

ACUTE ASCENDING PARALYSIS.

See Spinal Cord, Diseases of.

ADDISON'S DISEASE.

PATHOLOGY. Atrophy of suprarenal capsules normal in old age; may occur earlier in life and cause Addison's disease. Theory of lesion of sympathetic and suppression of excretory function untenable. Capsules probably produce some fluid necessary to economy; interference with this function gives rise to Addison's disease. *Rolleston*, i. E-49.

Suprarenal bodies elaborate substance having powerful action on muscular tissues and on muscular coat of arteries. In small doses it causes enormous increase of blood-pressure and acts on heart. Phenomena of Addison's disease possibly entirely or in part due to absence of this active principle. *Schäfer and Oliver*, i. E-49, 50.

Melanoderma observed whenever the periphery of the organ, cortex, nerve-filaments or ganglia of the region involved. *Fenwick*, *Greenhow*, *Jurgens*, *Kalindero*, *and Babès*, i. E-50.

In four cases capsules extremely tuberculous; in a fifth, carcinomatous degeneration. Most constant symptom in all, steadily increasing *bronzing*. *Possett*, i. E-50.

Case in which autopsy showed advanced

fibrocaseous degeneration. Semilunar ganglion, cœliac plexus, and adjoining sympathetic histologically found free from disease. *Gioffredi and Zinno*, i. E-50.

Case of subacute suprarenal cachexia without pigmentation. Only two symptoms: uninterrupted rise of temperature during 1½ months; progressive cachexia marked by loss of flesh and inability to undergo any muscular strain, at autopsy adrenals showing caseous-suppurative degeneration of tubercular origin. *R. Marie*, i. E-51.

Cases in which autopsy showed marked lesions, mostly fibrocaseous degeneration. Case in which death ensued in less than three weeks. *Donkin*, i. E-51.

TREATMENT. Extract or tincture of suprarenal capsules sometimes a true curative remedy. *Maragliano*, *Shoemaker*, *Lloyd Jones*, *Oliver*, i. E-51.

Suprarenal extract of doubtful efficacy; might be of advantage in the earlier stages. *McCall Anderson*, i. E-51.

Case with symptoms of Addison's disease in patient who had had syphilis. Specific treatment gave good results. *Chiperovitch*, i. E-51.

Glycerophosphates of lime, iron, sodium, magnesium, and potassium, either by subcutaneous injection or by the mouth (see GLYCEROPHOSPHATES, vol. v., section A). *Albert Robin*, v. A-79.

No curative agent known. Symptomatic treatment and easily-digested, but nutritious, food; milk especially; hygienic measures. Fowler's solution and phosphates to sustain strength. Iron preparations (Nothnagel). Faradization and galvanization of sympathetic (Rockwell).

For Vomiting in: Morphia and belladonna.

For Prostration in: Lemonades of lactic or hydrochloric acid.

For Constipation in: Purgatives easily produce diarrhœa. Enemata of water or glycerin and water preferable.

For Diarrhœa in: Bismuth in large doses; or, if severe, pill of ℞ Oxide of zinc, ½ grain; camphor, ½ grain, and morphia, ½ grain, every three hours. [EDITOR.]

ADENITIS.

CERVICAL.

PATHOLOGY. Adenitis not a manifestation of an already generalized tuberculosis; bacillus penetrates by solution of continuity of mucous membranes or skin to the ganglion, which becomes a seat of infection. *Duhamel*, iv. E-1.

[A distinction should be made between *hereditary* (congenital) and *acquired* tuberculosis. In the latter case the author's views seem rational and correct, being comparable with and analogous to the phenomena observed in carcinoma and syphilis. When the infection is *acquired* there is at first a local seat or focus of infection where the disease-germs develop and from which, after proliferation, they spread until the disease becomes more or less generalized,—the germs being transmitted through the lymphatic system to the lungs and thence in the blood-stream to the various organs of the body; the various glands along the course or path of transmission become affected and in turn become additional possible foci of infection. On the other hand, when the trouble is *hereditary* the glandular manifestation is an indication of an already generalized tuberculosis. C. SUMNER WITHERSTINE, Assoc. Ed., iv. E-1.]

Proof of this has been lacking, and experimental attempts to induce tuberculosis of the cervical glands by introduction of tubercle bacilli into the tonsils have failed. *J. Solis-Cohen*, iv. E-1, 2.

In post-mortem examinations upon bodies of 25 tubercular patients, tuberculosis of the tonsils in 12, in every case in which the lymph-glands of the neck were also affected. *Kruckmann*, iv. E-2.

[To be of best value extirpation must be done before infection has extended beyond the glands involved, else the infection will proceed, nevertheless, to generalization. When done later, it may prevent that secondary infection which follows from an overswollen or suppurating gland, and may be of cosmetic value,—that is, to prevent unsightly and extensive scars. C. SUMNER WITHERSTINE, Assoc. Ed., iv. E-2.]

Considerable proportion of cases of enlargement of tonsils and adenoid vegetations of pharynx tuberculous in nature. *Dieulafoy*, iv. E-2, 3.

Suppuration of cervical glands derived from the pharynx, as a rule, without tuberculous lesion of that part. *Eustace Smith*, iv. E-3.

Case of tuberculous inoculation through a small wound on the chin by kisses of tuberculous mother; cutaneous tuberculosis, followed by tuberculous lymphangitis. *Rémy*, iv. E-3.

[If the mother were tuberculous, there is a reasonable doubt that her offspring was a "healthy child," as stated. C. SUMNER WITHERSTINE, Assoc. Ed., iv. E-3.]

TREATMENT. Metallic iodine has special affinity for tuberculous glands. Eight or ten applications usually insure cure, provided cavity filled with crystals. *Guermonprez*, iv. E-3.

Oil of turpentine injected into fistulæ or abscesses after curettement and aspiration. After four to six days abscesses incised; packed with sterilized gauze containing turpentine ointment; eighteen cases. *Isnardi*, iv. E-3.

ADENITIS (continued).

Extirpation indicated when internal medication has failed; when glands involve face and produce deformity; when they are isolated and not numerous; when they have undergone fibrous degeneration; when they are not freely suppurating. It is contra-indicated when there is impaired general health and tubercular deposits in lungs and joints; when ramifications of glandular chain are very extensive. *Le Dentu*, iv. E-3, 4.

Subcutaneous extirpation. Incision at the nape of neck begins at level of external auditory meatus, 1 centimetre from hairy border, and passes with a slight convexity downward 5 centimetres backward, downward toward the median line. *Dollinger*, iv. E-4.

PERIBRONCHIAL.

PATHOLOGY AND DIAGNOSIS. Importance of lesions resulting from caseation; softening of lymphatic glands situated around lower end of trachea and main bronchi. Evidence from percussion of doubtful value; alterations in breath-sounds much more important, especially when unilateral; divided respiration, with prolonged expiration, unaccompanied by any adventitious sounds. Eight cases in which enlarged glands ulcerated through air-tubes. Breath had a very offensive odor. Co-existence of fœtor with hæmoptysis and evidence of pulmonary consolidation suggestive. When vomiting of blood and its passage by bowel added, diagnosis of glands rupturing into bronchus and œsophagus the most likely one. *Voeleker*, i. A-98.

TREATMENT. When due to tuberculosis and kindred diatheses and not complicated by fever or involvement of lung-tissue, seashore or country. At sea-side children should not bathe in the sea, and should be as quiet as is consistent with life in the open air. Brisk friction of skin, proper feeding; iodotannic syrup, 2 to 4 teaspoonfuls per day. After three to four weeks emulsion of calcium lactophosphate and codliver-oil. Counter-irritation between shoulder-blades favorable. *Marfan*, i. A-99, 100.

ADENOMA SEBACEUM. (See also Tumors.)

Very rare. In Caspary's case small tumors had developed after small-pox; consist of a great number of sebaceous glands closely packed. *Coleman*, iv. A-5.

Distinct encapsulation with presence of a more or less decided connective-tissue stroma; degenerated epithelium seems to proliferate under form of distinct lobules, cords, and tubes. Hyaline degeneration of vessels or connective tissue almost always occurs; very probably become calcified or osseous; they may undergo carcinomatous degeneration. *Barlow*, iv. A-5.

ALBUMINURIA. (See also Bright's Disease.)

PATHOLOGY. [Question still unsettled. First view: a disturbance of the glomerular circulation. Second view: an alteration of the proteids of the blood-plasma, structural changes in the kidneys being secondary. A. Rubino, Assoc. Ed., i. E-1.]

Second view re-asserted. In the majority of toxic, rheumatic, and gouty diseases albuminuria always arises through a modification in the diffusibility of sero-albumin, due to molecular alterations of the blood. *Semmola*, i. E-1.

Semmola's views contradicted by several observers. In the blood of chronic parenchymatous inflammation patients proportion of globulin to albumin 1 to 2 or even 1 to 3; similar proportion in pernicious anæmia. Coagulation-temperature higher in Bright's disease than that of normal serum. Other experiments show that, although blood changes are present, the evidence is insufficient to indicate that the blood disease is the primary element. *Freund*, i. E-1.

Altered hæmatopoiesis. In the acute form of albuminuria the blood-elements are rejuvenated and the blood gradually returns to its normal state. In chronic form the lesions are more profound and the improvement is but transient. *Bogdanoff-Beresowsky*, i. E-2.

The form due to various disorders—temporary asphyxia, digestive disturbances, etc.—differs from that of nephritis. The former is ephemeral; the latter is due to the action of toxins upon kidney. *Legendre*, i. E-2, 3.

Experiments showing undoubted occurrence of alimentary albuminuria, due to ingestion of proteids in excess, particularly when uncooked. Transitory albuminuria is not dependent on the character of food. *Ott*, i. E-3.

In transitory or "cyclical" albuminuria, symptoms of true nephritis are complained of momentarily; the cases frequently present a history of acute nephritis following infectious disease. Casts are found in some cases. It is a temporary excretion of albumin without organic change which may disappear after years. *Osswald*, i. E-3, 4.

In a boy albuminuria was absent when he was in a recumbent position, but present in proportion with muscular exertion. Always sero-albumin. It showed no relation with the quantity of nitrogenous food taken. *Tewes*, i. E-4.

Albumin may be found in urine of young healthy subjects, particularly in the morning. Transitory albuminuria may be due to functional disturbance with nephritis. The quantity of albumin is no guide as to the gravity of case. *Richter*, i. E-4.

Neurasthenic and other functional nerv-

ous diseases are well-nigh constantly accompanied by albuminuria, glycosuria, excess of uric acid, etc. Urinary products result from, rather than cause of, disease. These are cases of lithæmia, and not of early nephritis. *Gray*, i. E-4.

Nervous symptoms constantly met with in hypochondriacal form of neurasthenia, but not a single symptom pointing to renal disease, beyond albuminuria. *C. E. Simon*, i. E-4, 5.

Albumin a very frequent, but not normal, constituent due to certain irritations. Mental or physical equilibrium disturbances, emotions, etc., may give rise to traces of albumin. *Spiegler*, i. E-5.

Albuminuria much more common in adults, apart from Bright's disease, than generally thought; frequency of instances increases with age; hence, probably often the result of senile changes. It is highly probable that faint traces of albumin, hyaline and finely-granular casts, after 50 years of age, are of little or no practical import. *Shattuck*, i. E-5.

Case in which a grave scarlatina was followed by permanent albuminuria, influenced by diet; diminished under milk, increased when much food taken. *Colrat*, i. E-5.

After compression of thorax there is anæmia of cortex with fine, colorless albuminous granules. After temporary ligation of renal artery there is hyperæmia of cortex with excretion of coarse albuminous masses stained with blood-coloring matter. Kidney disturbance from compression so slight as probably to be within physiological limits. *Seelig*, i. E-6.

TESTS. A most reliable and practical test: "Put a few drops of liquor potassic in a test-tube full of urine and filter it. Fill test-tube one-half with filtrate, then add 15 to 18 drops of fuming nitric acid; some cloudiness, if albumin. Boil over an alcohol-lamp and let it stand one-half hour. Sediment of whitish flakes or brownish granules. Boil it again. If they consist of albumin, they will not dissolve." In testing by Heller's nitric-acid test, dilution of urine to specific gravity of about 1005 avoids confusion arising from rings produced by uric acid, resinous substances, etc. *Jaisohn*, i. E-55, 56.

Weight percentage of albumin never exceeds 3 to 4 per cent., rarely 1 per cent. *L. H. Jones*, i. E-56.

Sulphosalicylic acid will at once show presence of smallest amount of albumin by causing a cloudiness when added to urine in 30-per-cent. solution or substance used. *Ott*, i. E-56.

Sulphosalicylic acid practical and easy test for albumin; sensitiveness, 1 to 20,000. *Devic*, i. E-56.

1 in 3 solution of resorcin an infinitely more delicate test of the presence of albumin in urine than nitric acid. *Carrès*, i. E-56.

Method for separating sero-globulin from sero-albumin simultaneously contained in the urine. *Daiber*, i. E-57.

GLOBULIN. Proportion in which globulin, usually associated with albumin in the urine, varies so much that it is not possible to determine the variety of kidney disease by means of it. *Boyd*, i. E-58.

NUCLEO-ALBUMIN. Examinations of 205 urines. 1. Nucleo-albumin exists in every urine. 2. Reaction of urine, whether acid or neutral, has no influence upon demonstration of nucleo-albumin. 3. Nucleo-albumin in febrile diseases undergoes an increase, diminishes in stage of decline. 4. In febrile albuminuria increased excretion nucleo-albumin precedes albuminuria. *Ott*, i. E-57.

Two hundred urines examined for nucleo-albumin with negative result. *Sarzin*, i. E-57.

ALCOHOLISM.

PATHOLOGY. The continual ingestion of alcohol causes atrophy of elementary organisms, tending to destroy cellular protoplasm and vitality. *Gaule*, ii. E-1.

The walls of cells inclosing germinal matter are dissolved, free albumin is coagulated, red globules are deprived of part of contents, leaving them shrunken; growth of tumors favored, metabolic action limited, organization of neurodynia of gray matter reduced or prevented. *Wilkins*, ii. E-1, 2.

Even in minute quantities alcohol favors the growth of many pathogenic organisms, including those of pus and diphtheria. *Ridge*, ii. E-2.

Alcoholism epilepsy is due to a predisposition to epilepsy, which manifests itself through the influence of alcohol. Curable by abstinence; dipsomania also when in predisposed neuropathic subjects. Alcoholic dementia with amnesia incurable. *Forel*, ii. E-2.

Even small doses diminish intellectual power. *A. Smith*, ii. E-2, 3; *Fürer*, ii. E-3.

Form of alcoholism determined by pre-existing anomaly of subject; alcoholic psychopathia often the consequence of parental addiction; psychopathia and alcoholism cause one another. *Fürer*, ii. E-3.

[A large share in the genesis of melancholia is due to agencies lowering the general health, among which alcohol is conspicuous. Farquharson found 11 per cent. of asylum cases of melancholia due to intoxicants, while many victims of suicidal melancholia who had no insane heredity had a family history of inebriety. N. Kerr, Assoc. Ed., ii. E-3.]

Case showing hepatic origin of delirium. *Klippel*, ii. E-3.

Dynamometer shows that the muscular strength is diminished under influence of

ALCOHOLISM (continued).
even moderate doses of alcoholic drinks. *Fürer*, ii. E-3.

Psychomotor hallucinations are rare. *Vallon*, ii. E-3.

Compression of the eyeball causes perception of Purkinje's figures in healthy individuals, visions of objects and persons in four-fifths of patients suffering from alcoholic delirium. *Liepmann*, ii. E-3, 4.

Confirmatory experiments; vision of animals noted in 50 per cent. of cases of alcoholic delirium *Jolly*, ii. E-4.

Visions of animals are present in 40 per cent. of cases at most. Such patients cannot estimate distances. *Leppmann*, ii. E-4.

Most important effects of alcohol on the tubular neurin are shrinking and hardening, transmission of impulses being impaired; on vesicular neurin the dissolution of phosphorus, protagon, and lecithin, with selective affinity for the neurin of the cerebellum. *Wilkins*, ii. E-4, 5.

[Statement as to hardening of the neurin and other tissues by alcoholic ingestion requires further corroboration. Frequently microscopical appearances are deceptive. N. Kerr, Assoc. Ed., ii. E-5.]

The ingestion of alcohol causes migration of microbes from the intestines to the peritoneum and to the blood of the vena porta. *Wurtz and Hudelo*, ii. E-5, 6.

Experimental alcoholism in animals causes preliminary gastric catarrh, then fatty degeneration of the liver. *Koulbine*, ii. E-6.

Ptyalin of saliva and pepsin precipitated; gastric vaso-dilators paralyzed, while the constrictors are stimulated, preventing flow of gastric juice and accounting for irritability, anorexia, etc. Stomach inflamed and covered with thick mucus. Duodenal and pancreatic function prevented. Stearin dissolved out of the fat by alcohol, remaining elements contributing to fatty degeneration of various organs. Excessive use continued any length of time prevents rehydration of glycogen and its transfer to the blood, and oxygenation of bilirubin to form biliverdin. In this sense, even small quantity of alcohol inimical to life. *Wilkins*, ii. E-6.

[Sir William Roberts's view, that we are, as a rule, suffering not from slow, but from too rapid, digestion, and that we therefore need alcohol, not to aid digestion, but to hinder it, can hardly be accepted. Clinical observations of performance of digestive function in living human subjects does not exhibit, as a rule, improved digestion on administration of alcohol. N. Kerr, Assoc. Ed., ii. E-7, 8.]

Case of acute alcoholism in which hepatic functions were suppressed during twenty-one days. *Cassaet*, ii. E-8.

Alcoholic excesses one of the main causes of tuberculosis by predisposing system to action of bacillus. Phthisis of drunkards presents peculiar characteristics in localization and evolution. Lesion, instead of left apex in front, is located at the right apex toward the back. Improvement usually follows first attack, and recovery frequently ensues if alcoholic habit corrected. If continued, disease suddenly assumes alarming character, involvement of both lungs, peritoneum, and meninges quickly causing death. *Lancereaux*, ii. E-8, 9.

Increase of tuberculosis proportionate with that of alcoholism in France. *Lagneau*, ii. E-9.

First and most frequent effect on kidneys is polyuria, then diabetes insipidus, followed by diabetes mellitus in predisposed alcoholics. *Wilkins*, ii. E-9.

Alcohol lessens the absorption of oxygen by the blood-corpuscles and the exhalation of carbonic dioxide. Every function of the body is thereby affected. *Prout*, *Edward Smith*, *Harley*, *Schmiedeberg*, *Vierordt*, etc., quoted by *J. J. Ridge*, ii. E-9, 10.

It paralyzes the vaso-constrictors and, at times, vaso-dilators of capillaries, causing local hyperæmia and stasis. Hypertrophy results from vaso-constrictor paralysis and atrophy from vaso-dilator paralysis. *Wilkins*, ii. E-10.

Old and fine brandy is more toxic than the ordinary kind sold in bar-rooms. *Daremberg*, ii. E-10.

Cheap whiskies do least harm because they contain least alcohol. Too great stress laid upon importance of unadulterated alcoholics. *Leroux*, ii. E-10, 11.

Ethyl-alcohol, even when pure, is a poison. *Rochard*, ii. E-11.

Furfurol one of the most dangerous poisons of alcohol. Natural wine and alcohol produce exhilaration; toxic alcohols produce criminal impulses, stupefaction, and death. *Laborde*, ii. E-11.

In dogs wine alcohol produces depression and inebriety lasting four to five hours; beet-root alcohol comatose sleep and anæsthesia lasting twenty-four hours, followed by illness; maize alcohol the same plus subsultus tendinum. *Magnan*, ii. E-11.

Cause of alcoholism depends more upon the quality than upon the quantity absorbed. *Alglave*, ii. E-11, 12.

ALCOHOLISM IN CHILDREN; HEREDITY. Large percentage of insane children in Germany due to habitual drinking. Alcohol produces *acquired* insanity by acting as exciting cause and *hereditary* insanity by causing organic changes which are transmitted to descendants. Habitual drinking most detrimental to offspring. *Rust*, ii. E-12.

Proportion of hereditary to acquired cases two to one. *Piper*, ii. E-12.

Proportion of hereditary cases increased 50 per cent. over acquired during the past twelve years. *Holmes*, ii. E-12.

Alcoholism and evil disposition with criminal tendencies ascribed to heredity. *Moreau*, ii. E-12, 13.

Double parental alcoholism causes alcoholism, absinthism causes epilepsy, and combination of absinthism and epilepsy common cause of epilepsy in children. *Legrain*, ii. E-13.

The generative cells of drunkards alcoholized and their children are degenerates; their resisting-force against alcohol is thus diminished. Evolutionary adaptation of mankind to alcohol is impossible. *Fürer*, ii. E-13.

Experimental dosing of hens' eggs with alcohol delays and modifies development, monstrosities and anomalies resulting. *Féré*, ii. E-13, 14.

When double parental alcoholism is of sufficient duration to induce nerve-centre organic disturbances, a weak mind in offspring is inevitable. *Wilkins*, ii. E-14.

TREATMENT. Alcoholism must be recognized as a disease. *Crothers, Marandon de Montyel, Ladame*, and others, ii. E-14.

Inebriates should be placed in farm colonies under strict care and treatment and made self-supporting. *Crothers*, ii. E-14.

Development of patient's will-power most important part of curative measures. *Norton*, ii. E-14.

To produce distaste for liquors: Small doses of atropine, less than $\frac{1}{100}$ grain, hypoderm., three or four times a day, produce distaste in from one to five days. *Carter*, ii. E-14.

Same effect produced by ipecac, 20 minims of the fluid extract used as hypnotic. *Waugh*, ii. E-15.

Strophanthus, 7 minims of the tincture, also arrests a paroxysm in from one to three doses. *Skworzow*, ii. E-15.

To overcome longing for drink, due to irritation of gastric nerve-supply: ℞ Chlorated water, 2 drachms; decoction of althæa, 5 ounces, and cane-sugar, 2 drachms. M. Sig.: A tablespoonful every two or three hours. *Zdekauer*, ii. E-15.

For Insomnia: Ipecac, 10 to 30 minims of fluid extract. Dorsal decubitus to avoid nausea. *Waugh*, ii. E-15.

Chloralose, 10 grains. *Haskovec*, ii. E-16.

Hypnotic suggestion in twenty-three cases. *Bushnell*, ii. E-16.

For Delirium: Chloralose, 10 grains, dissolved in warm water induces sleep and quiets tremor. *Haskovec*, ii. E-16.

A very hot bath gradually cooled and trional, 20 grains, in water containing 10 minims of tincture of capsicum. If in thirty minutes there is no abatement, 10 more grains of trional are given. Forced feeding, milk, eggs, soups, etc. *Bellamy*, ii. E-16.

Chloralose in doses of from $1\frac{3}{4}$ to $15\frac{1}{2}$ grains, preferably given in solution in boiling water. Sedative effect in from fifteen to twenty minutes after taking the drug. *Haskovec*, v. A-53.

Trional of great value in insomnia. Morphine or opium retards action of trional. *C. H. Springer*, v. A-159.

Hypnotic suggestion. *Bushnell*, ii. E-16, 17.

[I cannot recommend ordinary employment of subcutaneous injection, administration by mouth being as efficacious and accompanied by less risk. Neither can I approve of hypnotism. Disgusting an inebriate with alcoholic intoxicants is not to cure the disease of inebriety or narcomania. Time, patience, control, study of individual peculiarities. Strychnine, sometimes atropine, judiciously employed, are at times useful; but there is no specific. N. KERR, Assoc. Ed., ii. E-17.]

The number of relapsed cases from so-called "gold cure" increasing. Insanity common among them. *Crothers*, ii. E-17.

LEGISLATION. Strict State control of the sale of intoxicating beverages. Prices to be made too high for consumer or too low for dealers' interests, while tea, coffee, etc., dealers be exempted from price restrictions. *Meilhon*, ii. E-17, 18.

Reduction of number of taverns; reduction of tax on cider and beer; moderate tax on wine; notable increase of taxation on alcohol; forbiddance of manufacture of drinks containing essential oils. *Lancereaux*, ii. E-18, 19.

Lectures in schools illustrating horrors of alcoholism. *French government*, ii. E-19.

Colored plates showing pathological changes caused by alcohol. *Swiss Patriotic League*, ii. E-19.

Severe punishment of persons who encourage alcohol-addicted individuals to drink. *Burr*, ii. E-19.

ALCOHOL POISONING.

Fatal case of acute alcoholic poisoning in a child twenty-two hours after only 2 ounces had been ingested. Importance of carefully watching dose and effects of alcohol in children. *Devine*, v. D-1.

Strychnine rapidly and distinctly augments excitability of motor area of cortex previously depressed by alcohol in animals. *Runkewitch*, v. D-1.

[Strychnine (nitrate or sulphate) is usually administered hypodermically in doses of 0.002 to 0.01 gramme ($\frac{1}{30}$ to $\frac{1}{6}$ grain) daily, or oftener, as indicated by the gravity of the case (see ANNUAL, 1895, vol. ii, F-13; vol. v, A-143). C. SUMNER WITHERSTINE, Assoc. Ed., v. D-1.]

ALKAPTONURIA. See URINALYSIS.

ALOPECIA AREATA.

ETIOLOGY. The fact that cases often get well without the application of a parasiticide or other local applications strengthens the neurotic theory; negative results from thyroid extracts. *Henry Waldo*, iv. A-6.

Case in which hair of head and both eyebrows rubbed off on account of pruritus. *George T. Elliot*, iv. A-9.

TREATMENT. Oxygen kept in contact with bald areas; patients wear an India-rubber high hat, filled with pure oxygen through a tube. *George Stoker*, iv. A-6.

Affected area covered with solution of corrosive sublimate in glycerin, 1 to 100; then tattooed punctures need only be slight—sufficient to permit penetration of antiseptic. Successful results in most inveterate cases. *M. A. Martin*, iv. A-6.

To act upon derma we must first destroy horny layer by patch of vesicating fluid of Bidet. The following day a 15-per-cent. solution of nitrate of silver is applied upon the denuded chorium, with or without previous cocaine anæsthesia. Renewed in ten or fifteen days if necessary. Results far surpassing those following other procedures. *Sabouraud*, iv. A-6, 7.

Experimented with Gautier with procedure advised by the latter,—*e.g.*, cupric electrolysis. Method does not give results which permit of its being advocated. *Brocq*, iv. A-7.

Currents of high tension and of high frequency. *D'Arsonval*, v. B-4.

Spraying of bald spots with chloride of methyl. Sprayed once a week not painful. *Tsakiris*, v. A-107.

Case of traumatic alopecia following scratches. Under 40-per-cent. tincture of oil of cade redness and thickening somewhat reduced and itching lessened. *G. T. Jackson*, iv. A-9.

Although syphilitic alopecia almost always disappears spontaneously or under influence of general treatment, it is well to increase the activity of the new growth by frictions every other day with ℞ Perchloride of mercury, 7½ grains; cologne-water, 8 fluidounces. Supplemented twice a week by ℞ Yellow oxide of mercury, 15 grains; pure vaselin, 6½ drachms. *Brocq*, iv. A-7.

Negative results from thyroid extract. *H. Waldo*, iv. A-6.

ALOPECIA UNIVERSALIS.

ETIOLOGY. Case following prostration through shock, continued until there was complete denudation of hairy portions of the body. *Morton*, iv. A-7.

Complete alopecia of scalp, unassociated with injury or accident, not preceded by any parasitic disease. Eyebrows and eyelashes unusually full and strong. *Stowers*, iv. A-8.

Complete alopecia in a boy aged 8 years. Hair began to fall in round patches at the age of 3 years. *J. Hutchinson*, iv. A-8.

Case of alopecia and scleroderma; complete loss of hair from all parts of the body. *Rille*, iv. A-8.

Case in which scleroderma simulated alopecia areata. *Leslie Phillips*, iv. A-8.

TREATMENT. Universal alopecia arrested in a case by thyroid extract, 5-grain tabloids three times a day. *H. R. Beevor*, iv. A-8.

Thyroid treatment given a full trial in both universal and partial alopecia; unable to observe any beneficial effect therefrom. *Hector Mackenzie*, iv. A-8.

[I cannot too strongly warn the reader against placing too great confidence in the marvelous results obtained recently in numerous dermatoses from the thyroid treatment. The subject requires considerable control study before these results can be accepted. L. BROCQ, Assoc. Ed., iv. A-9.]

AMAUROSIS. See EYE, DISEASES OF.

AMBLYOPIA. See EYE, DISEASES OF.

AMENORRHŒA. See MENSTRUATION, DISORDERS OF.

AMNESIA.

Case of partial, continued amnesia, apparently due to disturbance of circulation in the cortex. *Ferari*, ii. A-20.

Form of amnesia originating during febrile infectious diseases; retrograde and progressive in character. *Egio Sciamanna*, ii. A-20.

AMPUTATIONS.

GENERAL TECHNIQUE. Modification of incision in Syme's amputation. Incision carried from tip of malleolus on either side directly downward parallel with the axis of the leg, the foot being held at right angles to the leg. Blood-supply to the flap is thus not interfered with. *Wyeth*, iii. H-37.

[This method is not new; it is mentioned in various books,—for instance, Tillmann's "Surgery." CONNER AND FREEMAN, Assoc. Eds., iii. H-37.]

When osteomyelitis has prevailed, to amputate high up close to the joint to get above the disease is good surgery, for, the longer the limb, the more use it will be to the patient. The seat of osteomyelitis can be readily cured, provided canal opened and bone carefully curetted up to the end of the canal. In amputation through large masses of muscular tissue, after tying large arteries, deep catgut sutures are passed through masses of muscle and tied firmly. Muscles are brought together and compression exer-

cised, bleeding prevented, and time saved. *Wyeth*, iii. H-37.

[In railroad crushes, where vitality of muscles interfered with, the application of such ligatures, if at all snug, might cause unnecessary sloughing. CONNER AND FREEMAN, Assoc. Eds., iii. H-37.]

Statistical study of 703 major amputations. Mortality-rate of 15.5 per cent.; mortality of single operators lower than in general hospitals. Prognosis as to recovery from amputations for disease much better than in cases of trauma. *John F. Erdmann*, iii. H-38.

Of 367 cases where flaps consisted of skin alone, 69, or 19 per cent., sloughed in whole or in part. Of 216 cases of musculo-cutaneous flap, only 41 sloughed,—or 19 per cent.,—showing comparative advantage of musculo-cutaneous flap as to vitality. Skin-flap found to be more easily killed by sepsis. Constitutional disease a frequent cause of flap-necrosis. *Lilienthal*, iii. H-38.

[As percentage the same in both cases, it is difficult to see how the writer proves his statement. CONNER AND FREEMAN, Assoc. Eds., iii. H-38.]

Out of the 703 cases, secondary suture employed in 37; in 20 of these wound closed in forty-eight hours; in 17, later. No deaths. Primary union in 17. *Torek*, iii. H-38.

In amputations for traumatism when primary shock marked, mortality 40 per cent.; where absent, mortality only 5 per cent. *S. Tousey*, iii. H-39.

Only objection to drainage consists in leaving it too long. If wound aseptic, tube ought not to be left in longer than forty-eight hours,—even twenty-four hours. As to shock, the wound should be treated by open tampon and patient allowed to go without further traumatism until shock recovered from. *McBurney*, iii. H-39.

[Tendency much more toward waiting in cases of shock than formerly, and apparently with reason, especially if aseptic and antiseptic precautions are observed. CONNER AND FREEMAN, Assoc. Eds., iii. H-39.]

Many cases of shock, so called, are cases of hæmorrhage. Amount of blood lost of very great importance; very early active measures to overcome its bad effect necessary. Hot saline solution thrown into blood-vessels of greatest value. A quart or quart and a half injected. *McBurney*, iii. H-39.

Doubt as to vitality of parts through which it is proposed to amputate determined by the application of Esmarch bandage three to five minutes. After its removal blush in the blanched healthy skin not seen in non-vital portion. Outline of parts which are white to be followed. *L. A. Stimson*, iii. H-39.

1. Importance of using muscle- and skin-flaps instead of skin alone, wherever possible. 2. Amputations through middle of foot do not leave a serviceable limb because of painful scars; better to cut through lower third of the leg or thigh,—points at which instrument-makers found it possible to apply most serviceable artificial limb. *Robert Abbe*, iii. H-40.

[Instrument-makers differ. Some claim that they can adjust a serviceable prothetic apparatus no matter where the limb may be divided. CONNER AND FREEMAN, Assoc. Eds., iii. H-40.]

By using buried suture, accurate apposition, and careful dressing, no occasion to regret omitting drainage. *F. H. Markoe*, iii. H-40.

Very necessary in amputations to shorten anæsthesia as much as possible. *T. W. Murray*, iii. H-40.

With drainage, absolute primary union in 60 per cent. Without drainage, absolute primary union in 67 per cent. *B. F. Curtis*, iii. H-40.

Getting rid of drainage would exclude danger of introducing sepsis with the drain and again with the second dressing. *B. F. Curtis*, iii. H-41.

Crédé's method. No drainage or sutures used. Wound is approximated and kept dry by compression bandage. *Crédé*, iii. H-42.

[Methods of Neudorfer and Crédé of advantage in certain cases and under certain conditions, but they have, as yet, received but little recognition among surgeons. CONNER AND FREEMAN, Assoc. Eds., iii. H-42.]

Drainage-tube exposes the wound to 178 varieties of cutaneous bacteria. *G. Wiley Broom*, iii. H-43.

Necessity of teaching those who have suffered amputation of a limb the use of the artificial member which has replaced it. *Gluck*, iii. H-43.

After an amputation, bony diaphysis covered with a sort of cicatrix sensitive on pressure. The skin at this place should be free from cicatrix and care should be taken not to interpose a layer of muscle, which readily turns into cicatricial tissue. Piece of bone can be detached and folded at right angles, which will cover the diaphysis through union by first intention. *Bier*, iii. H-43.

Detailed figures of 294 personal major amputations, with average mortality of 5 per cent. Surpassingly good results attributed to aseptic practice and saving of blood before and during operation. *W. L. Estes*, iii. H-43.

In grave railroad accidents, when serious damage of limb occurs, internal organs rarely escape; though patient may survive amputation, he sinks shortly afterward from

AMPUTATIONS (continued).
internal complication. Hence, surgeon should amputate only structures irrevocably destroyed, and never when intervention jeopardizes life. *Thomas H. Manley*, iii. H-43, 44.

Elastic tourniquet, each end of which is closed by a large ball of the same material, but vulcanized. Balls make the instrument self-fastening. *J. C. Schapps*, iii. H-44.

Case illustrating danger of elastic tourniquet. Esmarch band in position half an hour; complete paralysis of both sensation and motion in the hand. First sign of return of movement twenty-one days after operation. *James Bell*, iii. H-44.

UPPER EXTREMITIES. To control hæmorrhage in amputation at shoulder, upper flap transfixed after disarticulation. A strong, notched needle is passed through lower flap under surgical neck, and a stout catgut ligature is drawn through and tied tightly over inner edge of flap, including axillary vessels, skin, and muscle. Lower flap then cut out, artery being completely under control, vessels tied, and temporary ligature removed. *L. Gerald Dillon*, iii. H-45.

Same end reached by grasping inner flap between the thumb and fingers so as to compress the artery, thumb being in contact with the raw surface and the fingers outside. *R. Clement Lucas*, iii. H-45.

Case of successful removal of the upper extremity, together with the scapula and clavicle. *Ochsner*, iii. H-45.

Unusual Cases. Cases of amputation of the entire upper extremity, including the clavicle and scapula. *W. W. Keen, C. F. Chavasse, H. A. J. Mackenzie*, iii. H-45.

Interscapulo-thoracic amputation of the right upper extremity for chondrosarcoma of the shoulder-joint. *F. J. Shepherd*, iii. H-45.

Case of arm-amputation in which flaps sloughed badly. Strip was dissected up from over the ribs without loosening ends and arm-stump tucked into artificial pocket thus formed. *E. M. Foote*, iii. H-46.

LOWER EXTREMITIES. Hæmorrhage one of main causes of deaths in hip disease. Preventive hæmostasis consists in directly compressing with fingers, through an iliac incision, lower portion of primary iliac vessels, two centimetres within antero-superior iliac spine of the ilium. *Chalot*, iii. H-47.

To simply amputate the thigh and then remove upper extremity of the femur preferred. When care taken to apply Esmarch bandage at the root of the member, the danger from hæmorrhage is not of moment. *Pollosson*, iii. H-48.

[Several excellent methods of controlling hæmorrhage in amputation at hip-joint which offer advantages over those just described have been perfected and extensively employed by Wyeth, Senn, and others. Point of decided superiority is that bleeding is controlled in the posterior as well as in the anterior flap. Ligation of arteries or their direct compression becomes desirable, however, when diseased tissue encroaches too strongly upon the pelvis. CONNER AND FREEMAN, Assoc. Eds., iii. H-48.]

Simple method. Femoral artery tied as soon as anterior flap cut; elastic tourniquet fixed as follows: Two pieces of calico bandage placed in position, one crossing opposite shoulder, the other the opposite hip; tourniquet applied over these bandages round the innominate bone and hitched above the crest of ilium in front and tuberosity of ischium behind. Free ends of bandages carried back to shoulder and hip and tied sufficiently tight to prevent slipping when limb is removed. *F. T. Paul*, iii. H-48.

[While patient's trunk remains straight a bandage over the shoulder will hold the tourniquet securely; but, if the trunk should become flexed toward the side of amputation, the bandage will relax and permit the tourniquet to slip. I have witnessed failure of a similar method. L. FREEMAN, Assoc. Ed., iii. H-48, 49.]

After resection of hip-joint to obtain perfect consolidation a nickel-plated nail is passed through the extremity of the femur 1 or 1½ centimetres into the ilium. The two bones are thus firmly united. *Montaz*, iii. H-49.

Disarticulation at knee-joint preferable, when there is sufficient material, to amputation low down in the thigh. *Habs*, iii. H-49.

For disarticulation at the knee and elbow, adaptation of the circular method of amputating, by which a long single flap is secured. *A. G. Miller*, iii. H-49.

AMUSIA.

Musical capacity as well as power of speech can be destroyed wholly or partially, in the latter case being decomposed into its several components,—several varieties of amusia. Various forms of amusia possess a certain degree of independence, both as regards each other and in relation to aphasia. *Edgren*, ii. A-19.

AMYOTROPHIC LATERAL SCLEROSIS.

ETIOLOGY AND PATHOLOGY. [Senator last year expressed the opinion that this affection was a variety of progressive muscular atrophy. The repeated attempts made of late to demonstrate that the entire psychomotor tract, from the cerebral cortex to the muscle, is directly affected by the disease are most important in this connection. Two neurons are thus involved,—the first

extending from the cells of the cerebral cortex to within the gray substance of the spinal cord, the second from the anterior-horn cell to the muscle. H. OBERSTEINER, Assoc. Ed., ii. B-16.]

Case in which disease affected, in turn, the right leg, the right arm, the left leg, and left arm, terminating within one year in bulbar paralysis and death. Careful microscopical examination of entire central nervous system distinctly showed changes throughout the motor tracts. A simultaneous degeneration of the upper and lower motor neurons took place. *Mott*, ii. B-16.

Two cases of atypical amyotrophic sclerosis, with post-mortem results. *Collins*, ii. B-16.

Cases of typical amyotrophic sclerosis, without autopsies. *Lewin, McCall Anderson, Barr*, ii. B-16.

Case showing, besides symptoms of amyotrophic lateral sclerosis, dementia, stammering, and aphasia. Autopsy showed typical lesions in spinal cord, and in the brain, in the left frontal lobe, a wide-spread porencephalitis. *Rauzier*, ii. B-16.

[This furnishes fine example of the superposition of two different nervous diseases in the same individual,—the one, the congenital affection, having no doubt prepared the field for the other. H. OBERSTEINER, Assoc. Ed., ii. B-17.]

Progress of amyotrophic lateral sclerosis hastened by an attack of influenza, and rapidly brought to a fatal ending. *R. Mackenzie*, ii. B-17.

Case in which disease began as paralysis agitans without tremor, muscular atrophy and exaggeration of tendon-reflexes only appearing later. *W. Krauss*, ii. B-17.

Symptoms of amyotrophic lateral sclerosis may also be simulated,—probably syphilitic pseudobulbar paralysis. *Ballet*, ii. B-17.

Case of a syphilitic who presented symptoms of amyotrophic lateral sclerosis. Spinal cord, however, disclosed changes resembling those of combined tabes, probably of vascular origin. *Olivier and Haliprè*, ii. B-17.

[The form of amyotrophic lateral sclerosis in which there are, besides degeneration of both motor neurons, alterations in the posterior columns must be regarded as a special variety of rare occurrence. Clinically it manifests itself principally by disturbances of sensibility. H. OBERSTEINER, Assoc. Ed., ii. B-17.]

Case which may be regarded as a combination of amyotrophic lateral sclerosis and tabes. *Hektoen*, ii. B-17.

ANÆMIA.

ETIOLOGY AND PATHOLOGY. In children pronounced anæmia without apparent cause strongly suggestive of concealed tuberculosis. *Rachford, Warner*, i. K-1.

In children it is nearly always an expression of rickets and of arrested development. *Mary P. Jacobi*, i. K-1.

In typical advanced forms there are iron deposits in liver, spleen, frequently in kidneys, sometimes in bone-marrow. In the form due to hæmorrhages, etc., there is but slight or no iron reaction. In the former case the iron is set free by the destruction of red cells. *Stühlen*, i. K-1, 2.

In one case iron was in the outer zone of the hepatic lobules, the kidneys being free; in another case iron was only found in the kidney, the liver being free. *J. A. Scott*, i. K-2.

Iron deposits are present in some cases, not in others. It is an open question whether hæmolysis explains the pathology and symptoms in all cases. *Ransom*, i. K-2.

TREATMENT. In children, iron and arsenic sparingly in tonic doses. Intestinal antisepsis in suitable cases. *F. M. Warner*, i. K-3.

Tinct. of the chloride of iron most efficacious when well borne. *C. Brown*, i. K-3.

Citrate of iron in moderate doses well tolerated. *Fruitnight*, i. K-3.

Best form. Nascent ferrous carbonate formed in stomach by reaction between iron sulphate and potassium carbonate. Worst preparations the albuminates, peptonates, and the colloid forms. Latter produce insoluble precipitate. Blaud's pill in tabloid form best. *Herschell*, i. K-3.

Mercury useful, even when syphilitic diathesis absent. *Ranieri, Zelenew*, i. K-3, 4.

Alleged benefit in three cases from zinc sulphate, $\frac{1}{6}$ to 1 grain at meal-time. *Savoca*, i. K-4.

ANÆMIA, PERNICIOUS.

High degree of anæmia usually follows numerous predisposing causes. In some it tends to cause degenerative changes in vessels, leading, in turn, to capillary hæmorrhages, conferring pernicious character. *R. Stockman*, i. K-4, 5, 6.

[I have for many years maintained that arguments in favor of "idiopathic" nature of pernicious anæmia are very faulty. F. P. HENRY, Assoc. Ed., i. K-4.]

Presence of staphylococci in the blood of a case during life. *Feletti*, i. K-7.

Small, mobile bodies, staining the same as red corpuscles and resembling fragments of hæmatins, thought to possess pathognomonic value. *Senator*, i. K-7.

ANOMALOUS FORMS OF. Form due to bothriocephalus latus: Clinical picture much the same as in classical form; diarrhœa frequent; eggs of tape-worm in stools; temperature sometimes high. *Schauman*, i. K-7, 8.

Sixty-seven heads of bothriocephalus voided in one case of pernicious anæmia after powerful vermifuge. *Askanazy*, i. K-8.

Form due to anchylostoma observed. In

ANÆMIA, PERNICIOUS (continued). 26 fatal cases in Fiji 18 found to have anchylostoma in duodenum. *Hirsch*, i. K-8, 9.

Changes in most respects identical with those of classical pernicious anæmia. *C. W. Daniels*, i. K-9.

SPLENIC FORM. Severe hæmolysis, probably due to absorption of products from the intestine. Sclerosis of spleen and pancreas, with marked changes in suprarenal capsules. *Douglas Stanley*, i. K-9, 10.

ATAXIC FORM. Extensive sclerotic changes in the posterior and lateral tracts, while the gray matter is unaffected. *James Taylor*, i. K-2.

Localization of lesion fairly constant; cervical swelling always seat of greatest change, the lesion gradually diminishing in intensity and extent downward until lumbar cord presents little or no change. *Burr*, i. K-3.

Study of seventeen cases. Degree of nervous affection not necessarily proportionate to degree of anæmia. In pernicious anæmia any of spinal symptoms of tabes may be present, while symptoms entirely foreign to tabes may also occur. Diseased centres in any portion of white substance, preferably in posterior columns; gray substance, zone of Lissauer, and intermedullary roots remain unaffected. *Noune*, ii. B-12.

In nine cases localization of centres found to be the same as that given by others,—Noune, for instance. A primary and possibly toxic affection of the nerve-fibres supposed. *C. W. Burr*, ii. B-12.

Case of disease of the nerve-tissue consequent upon anæmia. *Bowman*, ii. B-13.

Three cases of pernicious anæmia with spinal-cord symptoms, one ending fatally after several weeks. *Angel Money*, ii. B-13.

Changes in spinal cord similar to those met with in pernicious anæmia may occur in a variety of other diseases combined with cachexia and marasmus,—Addison's disease, diabetes, etc. *W. Müller*, ii. B-13.

TREATMENT. Removal of the exciting cause. Non-irritating form of iron; arsenic and phosphorus. Effects of bone-marrow not due to the iron contained therein. *Stockman*, i. K-10.

No physiochemical ground for the employment of bone-marrow. *J. S. Billings, Jr.*, i. K-10, 11.

Apparent benefit in two cases. *Drummond, McCall Anderson*, i. K-11.

Successful case after a month's treatment. *Lendon*, i. K-11.

Injections of iron do not combat cause. Ferric citrate of ammonium, 0.20- to 1-percent. solution internally, $\frac{3}{4}$ to 5 grains per dose. *Rocci*, i. K-11.

Glycerophosphate of iron, $\frac{7}{8}$ to $1\frac{3}{4}$ grains; rhubarb-powder, $\frac{7}{8}$ grain; extract of cinchona, $2\frac{1}{4}$ grains. To make one pill; 2 or 3 to be given daily at meal-time. *Albert Robin*, v. A-80.

ANÆSTHESIA.

CHLOROFORM.

GENERAL CONSIDERATIONS. Practical rules for administration of chloroform given by Hyderabad Chloroform Commission correct. 1. Chloroform given by inhalations and not blown artificially into lungs kills animals by paralyzing respiration. 2. Clinical observation has shown that cases of simple danger without death are due to failure of respiration. 3. Death may also be due to stoppage of heart or stoppage of heart and respiration together (neuroparalysis). 4. Most common cause of neuroparalysis found by Casper to be strangling, as in drowning, which kills by neuroparalysis as often as by asphyxia. (See text.) *Lauder Brunton*, v. E-1.

[Lauder Brunton's conclusions as given, in conformity with what has been taught since the time of Snow. His views as expressed are at variance with those expressed by the Hyderabad Commissions. Failure of respiration is, according to Lawrie, the only possible way for chloroform to kill. This appears to be too sweeping a statement. Very many observers have found the heart to fail before breathing ceases. (See text for argument.) Patient should not be allowed to inhale a high-percentage strength of an anæsthetic vapor, ether as well as chloroform. As to pulse, patient subjected to two perils,—stress of operation and effect of anæsthetic. Pulse gives anæsthetist valuable aid about both these perils; hence it is a mistake to teach that the pulse should be neglected. Best guide as to circulation is the color of the patient's skin and mucous membranes, and this should be constantly watched. DUDLEY BUXTON, Assoc. Ed., v. E-2.]

[Cases of death showing that to overlook condition of circulation is to overlook the first danger-signal in a large proportion of the cases. ED., v. E-3.]

Several illustrative cases further sustaining above, in which pulse gave primary indications of danger. *George Johnson*, v. E-4.

Clinicians have no right to report a case of death under chloroform as resulting from cardiac failure simply because the radial pulse is lost or the cardiac sounds cannot be heard; illustrative case. *Therapeutic Gazette*, v. E-5.

[Difficulty of arriving at an accurate judgment upon the cause of death in reported cases very great. Reports seldom accurate, being too often lay notes taken at the public investigation of the case in the coroner's court. The case referred to by the editorial writer corresponds to observa-

tions made by Oliver. During abdominal operations arteriometer recorded almost complete collapse of radial artery during traction on omentum, handling of intestines or other viscera. Whether these phenomena are to be understood to mean that blood-pressure is lowered by lessened peripheral resistance in capillary areas or not it is at present impossible to say. It appears certain that death under chloroform occurs under two very different conditions. In the one case peripheral resistance is so accentuated by the asphyxial state that the right heart becomes unable to empty itself; in the other, dilatation of the capillary areas leads to failure of circulation from want of "stop-cock action." DUDLEY BUXTON, Assoc. Ed., v. E-5.]

Chloroform may cause death in at least two ways: 1. Gradual primary respiratory paralysis, in which fatal termination is very gradual; chances of recovery good. 2. Primary failure of circulation. Onset is sudden; pulse gives first warning of danger; fatal termination the rule. *Alexander Wilson*, v. E-5.

EFFECTS ON THE HEART AND CIRCULATION. Two cases in which, through extensive injuries of cranium, large areas of brain proper were exposed. Under prolonged anæsthesia, chloroform reduced cerebral circulation. In one case in which the local hæmorrhage was severe the latter subsided as soon as patient was fully under anæsthetic. *Bedford Brown*, v. E-6.

Gravity is a cardinal factor; hydrostatic effects of gravity in changes of position ascribed to splanchnic vasomotor mechanism. When splanchnic vaso-constrictors paralyzed by injury or poisons, such as chloroform, influence of gravity becomes of vital importance, feet-down position being dangerous from dilatation of abdominal veins, with corresponding emptying of heart and cessation of cerebral circulation. *Leonard Hill*, v. E-6.

[The "dental position," that employed by dentists for removal of teeth, has caused a number of deaths during the year by sudden cessation of heart's action under conditions that would tend to confirm the views of Hill. ED., v. E-7.]

The use of chloroform or ether always dangerous in ordinary dental surgery and is unjustifiable. Nitrous-oxide gas is by far the best dental anæsthetic. *H. Sewill*, v. E-7.

Commonly observed fact that vomiting after anæsthetization is associated with severe degree of circulatory depression and not infrequently with actual syncope. *London Lancet*, v. E-8.

[Several cases in the year's literature vividly sustain this point. ED., v. E-8.]

In close connection with cardiac syncope is the element of fear. Marked difference in this particular between Europeans and Hindoos. Latter fearless. *John Smyth*, v. E-8.

Fear capable of inducing a fatal issue even when very small amount of anæsthetic has been inhaled. *White*, v. E-8.

Death from arrest of heart might be prevented, in chloroform anæsthesia, by having patient inhale chloroform only by the mouth. In arrest of heart, cardiac muscular fibres cease to contract under the influence of the nasal-nerve reflex through the pneumogastric. *Guérin*, v. E-8, 9.

Application to nasal mucous membrane, before commencing administration of anæsthetic, of a 10-per-cent. solution of cocaine, repeated every half-hour during long operations and at the end of each operation, to avoid chloroform reflex. Instrument for administration of anæsthetic by drop method. *Rosenberg*, v. E-9.

By the use of cocaine in the manner described the stage of excitement avoided in six personal cases. *Gutmann*, v. E-9.

Its advantages due to drop method of administering the chloroform. *Dührssen*, v. E-9.

Cocaine thus applied especially advantageous for the removal of adenoid vegetations and tonsils, sleep being much more quiet. *Robertson*, v. E-9.

[Cocaine, used locally for the same purpose, recommended by Laborde, of Paris, five years ago. ED., v. E-9.]

As effects of anæsthetic are passing off a rise succeeds the fall of blood-pressure induced by the drug; the greater and the more sudden the rise, the greater the danger. *Haig*, v. E-9.

Experiments showing that irregularity of heart and tendency to syncope are met with in animals after the last drop of chloroform has left the blood. This often occurs during a break in the administration or soon after its discontinuance. Sudden quickening of the pulse a sign of danger. *R. Kirk*, v. E-10.

Earliest effect of overdose is arterio-capillary contraction, which exerts a kind of stop-cock action to prevent blood dangerously loaded with chloroform from reaching tissues. Heart, itself depressed by anæsthetic, has not sufficient power to go through its systole in the face of the resistance in front. *J. M. Marsh*, v. E-10.

[Variations in circulation due not only to the above various factors, but also to alterations effected by chloroform in the central nervous system and local nervous mechanisms. As shown by Waller, electrical reaction profoundly altered by anæsthetics; hence distinct danger in conditions of nerve prostration and post-influenzal neurasthenia. The whole question of reflex inhibition of the heart under chloroform bristles with

ANÆSTHESIA (continued).

difficulties. If fear were simply the cause, such cases would occur often under ether, as that substance, when badly given, produces more terror, breath-holding, and struggling than chloroform ; and yet ether seldom, if ever, kills in this way. Unquestionably, chloroform — whether through poisonous effects on protoplasm or in some other way —exerts some deleterious influence upon tissues of patients, which renders them less able to withstand any unusual strain imposed upon them. DUDLEY BUXTON, Assoc. Ed., v. E-10.]

EFFECTS ON LUNGS AND RESPIRATION. Importance of great caution in the administration of chloroform in all asphyxial conditions. *Hardmann*, v. E-11.

Case showing what timely evacuation of contents of pleura will do in such cases. As soon as evidences of asphyxia showed themselves, skin divided with one cut of bistoury and pleura instantly opened and pus evacuated, almost moribund patient quickly returning to life. *Guermonprez*, v. E-11.

Case of death in a woman in which it was impossible to induce artificial respiration on account of rigid thorax and adherent abdominal viscera. *J. G. Clark*, v. E-11.

EFFECTS ON KIDNEYS AND RENAL FUNCTIONS. Examination before operation and during three days following latter of seventy individuals operated under chloroform and sixty under ether: 1. A pre-existing albuminuria exaggerated to a greater extent by ether than by chloroform. 2. Albuminuria appears more frequently after chloroform than after ether. 3. Chloroform and ether act in the same way upon the amyloid kidney. 4. Cylindruria as frequent after chloroform as after ether, but disappears more rapidly after ether. *D. Eisendrath*, v. E-11, 12.

Examination of urine of 100 men before and after chloroform narcosis. Of 42 cases in which before anæsthesia urine normal, 36 showed transient, but undoubted, albuminuria. Appearance of albumin in the majority of cases caused by injurious, though temporary, effect of the chloroform on the kidney, rendering the tissues permeable to serum-albumin. *Von Friedländer*, v. E-12.

After prolonged chloroform narcosis in healthy individuals prolonged disturbance in metabolism of albuminous substances occurs. *Kast and Mester*, v. E-12.

Urine examined chemically and microscopically in 125 patients before and after narcosis. 1. Previously existing albuminuria often increased. 2. Albuminuria may be produced by chloroform less frequently than by ether, but this disappears in one or two days after operation, unless complication appears. 3. Casts produced less frequently than by ether. 4. If casts present before operation they will be increased, in most of cases, by both agents. Albuminuria following ether or chloroform narcosis produced by an ischæmia of kidneys through diminution of blood-pressure. Influence of ether and chloroform upon epithelial cells of the convoluted tubules. *Wunderlich*, v. E-12, 13.

While effects of chloroform on kidneys are practically *nil*, in patients with renal affections this safety cannot be said to exist. Necessity of carefully observing urinary secretions one or two days before administration of chloroform. When renal lesions exist, chloroform should be avoided or given with greatest caution. *Allessandri*, v. E-13.

Presence of renal disease very greatly increases danger of administering anæsthetics; no surgeon should think of undertaking such procedures until after urine carefully examined on a number of successive days. Chloroform the anæsthesia of election in the face of renal complications. *Therapeutic Gazette*, v. E-13.

In the majority of healthy persons there arises an acetonuria of varying duration after narcosis. *Becker*, v. E-13.

Chloroform dangerous even when there is but a slight degree of diabetes. In twelve fatal cases coma did not develop until chloroform narcosis had passed off. *Baxter*, v. E-14.

[The researches given above are very important. It is probably not good advice to recommend chloroform in preference to ether in cases of kidney disease ; for, although less chloroform is required, yet this anæsthetic is more difficult to eliminate, and so exercises a more profoundly deleterious influence on the epithelial protoplasm and for a longer time than does ether, since the latter is rapidly eliminated by the lungs. This remark only holds when ether is given, as I believe it should always be given, from an inhaler and a minimal quantity employed. But few instances of suppression of urine, when investigated, proved to have followed ether even when the kidneys have been diseased. DUDLEY BUXTON, Assoc. Ed., v. E-14.]

EFFECTS ON THE DIGESTIVE SYSTEM. Dangerous to induce general anæsthesia in patients very much run down and suffering from abdominal disease. Irritation of intestines may cause, by reflex action, arrest of respiration. In such cases chloroform attended with greater risk than ether. *Guinard*, v. E-14.

[Operations performed upon unanæsthetized patients, although latter collapsed, apt to induce fatal syncope. Many believe, and I think justly, that anæsthesia produced by a general agent acts protectively in these cases. Deaths during intestinal operations possibly arise from progressive collapse.

Many deaths arise from vomiting, in these cases, during incomplete narcosis. DUDLEY BUXTON, Assoc. Ed., v. E-15.]

MISCELLANEOUS. There is always risk in giving chloroform or any other anæsthetic to a child, but this risk is diminished in proportion as the vapor is administered in a careful manner and by a well-instructed person. *E. Owen*, v. E-15.

[General impression that children very rarely succumb to the influence of chloroform erroneous. Demonstrated by many deaths published during the year in children ranging from early infancy to 15 years of age. ED., v. E-15.]

Chloroform administered to a woman, 94 years old, to reduce a dislocation. Patient bore the anæsthetic calmly and easily. *W. L. Heath*, v. E-15.

Instances reported in which chloroform administered to children and operations performed during sleep. *E. O. Belt and O. McKimmil*, v. E-15.

A coal-gas flame in an ill-ventilated room and a somewhat prolonged exhibition of chloroform may, by forming a compound with the latter, induce serious symptoms in patient, surgeon, and assistants. Illustrative instances. *Charles G. Lee*, v. E-16.

Identical effects observed. Irritating agent, a carbon oxychloride or phosgene, discovered by Sir Humphry Davy. *Paterson*, v. E-16.

Warning against use of chloroform near a gaslight,—ethylene-chloride formed. In tabetic patients fatal coma may be induced. *Rehn*, v. E-16.

[This inconvenience or danger may be partly met by using a chloroform-inhaler which does not require evaporation of a large quantity into the room. Junker's, as modified, answers well. Chloroform should never be given from a towel, cone, or lint in the presence of illuminating gas. The trouble is worse in foggy or wet weather. DUDLEY BUXTON, Assoc. Ed., v. E-16.]

SIGNS OF DANGER. Any material dilatation of pupils means either that patient is coming round—pupil active and other reflexes will follow—or that patient is getting too far under,—stertorous breathing, sluggish pupil, fixed eyeballs. In first case more chloroform; in second, drug to be withheld till contraction recurs. *A. H. Ward*, v. E-16.

Degree of narcotism present may, to a great degree, be determined by pupils. Breathing, pupil, and pulse must be watched. *White*, v. E-17.

When breathing assumes automatic character, indicating that patient is unconscious, amount of chloroform should be regulated by size of the pupil; pin-point pupil safest sign; large pupil may mean narcosis. *R. Gill*, v. E-17.

SEQUELÆ.

PARALYSIS. Three personal cases of paralysis following chloroform anæsthesia. *Vautrin*, v. E-17.

Struggles of patient during period of excitation appear to be of considerable importance and capable of directly causing disturbance of cerebral circulation. Cases in which mortal apoplectic area in brain thus produced. *Gross*, v. E-17, 18.

Case of hysterical woman; muscular atrophy of muscles of thumb and interosseous muscle due to bad position of arm during chloroformization. *Placzek*, v. E-18.

Case which presented complete paralysis of right arm; still present three months after anæsthetization. Post-chloroformic paralyses generally due to compression of the brachial plexus. *Franke*, v. E-18.

Case of musculo-spiral paralysis from pressure. Patient's arm pressed against an iron bar. Several similar cases have been reported. Commonest in laparotomies where operator stands at the side and the arm pulled up to be out of his way. *Bruns*, v. E-18.

[I believe that almost every case of paralysis following an operation under an anæsthetic arises from (1) mechanical pressure on nerve-trunks; (2) hysterical paresis. Certainly a large number of cases arise from the arms or thighs of patient being unduly compressed by edges of table or bed, Clover's crutch, etc. DUDLEY BUXTON, Assoc. Ed., v. E-19.]

CEREBRAL APOPLEXY. Case of typical hemiplegia with slight aphasia and facial paralysis. Question whether not more frequent than is supposed. *Senger*, v. E-19.

Case of tachycardia complicating chloroform anæsthesia. *Tuley*, v. E-19.

DOSE. Researches to determine quantity of ether or chloroform necessary to produce narcosis. Dose required relatively small. Narcosis obtained when the air contained from 0.15 to 1.3 per cent. of chloroform, or 2.1 to 7.9 per cent. of ether. Area of narcosis greater with ether than with chloroform; minimum quantity of ether necessary to produce anæsthesia could be greatly exceeded without endangering life, and narcosis could be prolonged by using the same dose, while, under similar conditions chloroform invariably causes death of the animal. Sleep under ether, when once established, could be maintained with a smaller dose than that required to produce it. From the beginning chloroform caused early arrest of heart and respiration. Ether affected neither of these. *Kionka*, v. E-19, 20.

[Kionka's work is of great value. A mistaken opinion has been accepted without proof, that ether, being a weaker anæsthetic, it must be given in very large quantity. Many surgeons ask for chloroform "to relax the muscles," whereas, as Snow has shown,

ANÆSTHESIA (continued).

more complete muscular relaxation can be obtained with ether than with chloroform. This is easily explained (see text). Every individual requires a specific dose. The drunkard and the athlete require much ; the pale, frail, anæmic woman very little. DUDLEY BUXTON, Assoc. Ed., v. E-20.]

Even ½ drachm of chloroform poured upon lint may give off at earliest inspirations an atmosphere containing more than 9 per cent. of vapor, known to be dangerous. *A. E. Sansom*, v. E-20.

An atmosphere of 5 per cent. is one of overwhelming power. *R. Kirk*, v. E-21.

Table of seven cases showing that true cause of numerous deaths is an overdose. *R. W. Carter*, v. E-21, 22.

Death not the result of the amount in the circulation, but of the sudden action of a lethal dose. *White*, v. E-21.

Drop-by-drop method much less disagreeable for the sufferer; excitement less frequent; patient comes more quietly under influence of anæsthetic; vomiting less frequent. Quantity required, 4½ to 5½ drachms. Experience of 1000 cases. *Bremer*, v. E-22.

No deaths in Scotland. Reason is that the men are not afraid of chloroform; use it fearlessly in unstinted doses, pushing patient rapidly under. Case after case of deaths reported in which the amount used was but ½ to 2½ drachms. *W. A. Parker*, v. E-23.

Vapor should be given in inspiration only and at first much diluted; patient merges into quiet sleep without stage of excitement. *R. W. Carter*, v. E-23.

A. E. Sansom quoted as saying that the *brusquerie* of its action has caused the greater part of the fatalities. *R. W. Carter*, v. E-23.

[There seems every reason to believe that an overdose of chloroform may be arrived at in one of two ways : (1) a sudden intake of a lethal dose, which, according to Sansom, who followed Snow's emphatic teaching, may be taken when even a small quantity of the anæsthetic is thrown on lint or a towel, or (2) through accumulation of the drug in the body. This commonly shows itself by paralyzing the medullary centres and so producing cessation of respiration. Impairment of *expiration* is the most usual cause of this, due in many cases to some mechanical cause, such as emphysema, falling back of the tongue, sucking in of the lips, or blocking of the air-ways by mucus or blood. The theory of Kirk is one I have utterly failed to recognize in men or the lower animals.

Bremer's remarks upon drop method appear based on incomplete data.

As to Parker's query about Scotland, many deaths under chloroform have occurred in Scotland even as early as in the days of Sympson. As no public investigation is held corresponding with our coroners' inquests, no report gets into the public press (see text). DUDLEY BUXTON, Assoc. Ed., v. E-23.]

ETHER.

COMPARATIVE EFFECTS. Death-rate of ether $2\frac{3}{10}$ times smaller than that of chloroform,—*e.g.*, 1 death from chloroform in each 1946 cases in which it was administered, against 1 death from ether in each 5834 cases; but grave pulmonary disorders, caused by ether, increase its mortality. *Gurlt*, v. E-25.

[The value of these statistics is invalided by the fact that details of methods of administration are omitted. A dangerous anæsthetic given properly is less perilous than a safer one given by a faulty method. On carefully investigating the history of so-called cases of bronchitis and pneumonia following ether, but few found to be really due to that agent. Removal of patient to a cold ward after having been in a hot operating-theatre and subjected to severe shock the more probable cause of lung trouble. DUDLEY BUXTON, Assoc. Ed., v. E-25.]

EFFECTS ON LUNGS. Case of œdema of the lungs one hour after anæsthesia, death one hour later. Allusion to 7 cases of the same kind; and 8 cases of broncho-pneumonia also due to ether. If the deaths occurring subsequently were added to Gurlt's figures, the proportion would stand about 1 to 2 in favor of chloroform. *Poppert*, v. E-26.

[Pulmonary œdema has never in my experience occurred. It may follow the exhibition of ether from a cone or towel folded like a cone. It is a question of dose. DUDLEY BUXTON, Assoc. Ed., v. E-26.]

Lesser danger of ether not yet proved. In 80 cases studied there were immediate deaths, but 3 cases of subsequent asphyxia, 2 of collapse, 4 of bronchitis, and 2 of pulmonary œdema. *Mikulicz*, v. E-27.

[Shock is a factor likely to introduce fallacies, when "late collapse" is attributed to ether. Many patients in bad health, as result of illness or accident, take ether, and its stimulating properties carry them through the operation. As this wears off "after-shock" or collapse comes on. DUDLEY BUXTON, Assoc. Ed., v. E-27.]

Two cases of acute croupous pneumonia and one of acute lobar pneumonia following etherization. Possibility of coincidence in such cases. *Prescott*, v. E-27.

Two cases of infectious pneumonia developing a few hours after ether anæsthesia ; marked post-mortem evidences. Demonstrate possibility of infection subsequent to toxic irritation. Possible auto-infection of buccal origin. *Nauwerck*, v. E-27, 28.

[As Nauwerck justly points out, many cases of so-called ether-pneumonia are of

septic origin. Paralysis of the soft palate, base of tongue, etc., is produced, and mucus and saliva flow plentifully into the air-passages. DUDLEY BUXTON, Assoc. Ed., v. E-28.]

Ether-pneumonia may be due to intense cold; pulmonary œdema to contraction of pulmonary capillaries. Chilling of blood-stream may be cause of nephritis. Red corpuscles and hæmoglobin especially affected in anæmic blood. *Chalmers Da Costa*, v. E-28.

[Attention drawn some years ago to dangers arising from rapid evaporation of ether from pulmonary mucous membrane by Tait. Best plan is to give ether from closed inhaler separated from patient's face by a bag containing air. DUDLEY BUXTON, Assoc. Ed., v. E-29.]

Pulmonary symptoms occur in series, due to decomposed ether, which then gives off vinous alcohol and peroxide of hydrogen. Ether should be kept in small, entirely-filled, well-corked bottles, kept in cool, dark place. Remnants taken from partially emptied bottles should never be used. *Bruns*, v. E-29.

[This plan was adopted at my suggestion at University College Hospital with the best results, for some years past. DUDLEY BUXTON, Assoc. Ed., v. E-29.]

EFFECTS ON TEMPERATURE. Lowered to greater extent under ether than under chloroform. *Angelesco*, v. E-29.

[Profuse sweating, commonly associated with inhalation of ether, rapidly lowers temperature. Temperature of patient principally lowered just before operation. DUDLEY BUXTON, Assoc. Ed., v. E-30.]

EFFECTS ON KIDNEYS. Ether has very marked irritating influence on kidneys, but varying with quantity administered. Urine should always be examined. As little ether as consistent with necessary effect should be given. *Deaver and Frese*, v. E-30.

True ether-nephritis does not exist. Albumin is not found unless present before anæsthesia. *Barensfeld*, v. E-30.

In the great majority of cases normal kidneys not affected and no harm in slight renal disease. *Weir*, v. E-31.

Albumin found in seven out of one hundred cases. Disappeared within forty-eight hours in all. *Campbell*, v. E-31.

[These results agree with those of Wunderlich, Alber, Rindskopt, and with my own. Ether-vapor is very rapidly eliminated,—mainly by the lungs. It is important to ascertain, in all cases of albuminuria following ether, whether the emunctories other than the kidneys are so damaged as to throw the elimination upon the latter. In my own experience any grave renal lesion following ether has been most exceptional, and I have never been able to satisfy myself that ether has ever caused a death in this way when ether was given by myself. DUDLEY BUXTON, Assoc. Ed., v. E-31.]

NERVOUS SYSTEM. Nystagmus a transitory phenomenon at beginning of muscular resolution. Epileptic trepidation is also observed. *Lenoble*, v. E-31.

[What is meant by epileptic trepidation is not clear. Lenoble probably refers to ankle-clonus, which is by no means an uncommon phenomenon of the earlier stages of anæsthesia. It occurs under most, if not all, anæsthetics in earlier stages, but disappears in the deeper zones of narcosis. Patellar reflex is also abolished in profound anæsthesia. DUDLEY BUXTON, Assoc. Ed., v. E-32.]

Ether induces only partial anæsthesia in many,—especially abdominal cases; chloroform substituted when ether proves insufficient. *König*, v. E-33.

[Insufficient anæsthesia under ether need never occur. The usual trouble lies with the method of giving the ether, and not with the anæsthetic. DUDLEY BUXTON, Assoc. Ed., v. E-33.]

TECHNICAL HINTS. Anæsthesia begun with ether, chloroform being substituted if a too profuse flow of mucus, cyanosis, continuous coughing, or hiccough occurs. *Kölliker-Busse*, v. E-32.

[Of all general rules, these of Kölliker open to many exceptions. Several complications occurring under chloroform will disappear if ether be pushed and plenty of air given with it. As to cyanosis, great care is necessary when chloroform is substituted for ether, unaërated blood being always a grave danger with chloroform. Cases in which change proves highly efficacious are those in which cyanosis is due to some spasmodic condition of the larynx or bronchi. To resort to chloroform when ether fails to give muscular relaxation is based on an old and mistaken idea that muscular rigidity is more likely to persist with ether than with chloroform. The rigidity is due, as a rule, to imperfection in giving ether. The most absolute muscular relaxation is that given by ether. Chloroform, if pushed to deep anæsthesia, causes poisoning of the patient's medullary centres. Ether can safely be pushed to this profound stage without respiratory centre becoming involved. The frequency of death under chloroform when dislocations are being reduced is explicable by this view, and may be obviated by ether slowly pushed to profound anæsthesia rather than by Kölliker's rule of substituting chloroform. Neither Julliard's nor Kölliker's masks are satisfactory for giving ether. DUDLEY BUXTON, Assoc. Ed., v. E-32, 33.]

A sudden variation in the intensity of even a moderate current applied to the left

ANÆSTHESIA (continued).
shoulder is often followed by nausea, faintness, and even alarming syncope. This may be compared to symptoms occurring under chloroform after reduction of dislocation of shoulder. *Plicque*, v. B-23.

The unpleasant sensations of early stage may be avoided by giving a small quantity of nitrous-oxide gas before the ether. *Rodgers*, v. E-34.

[When this method is properly carried out it is unquestionably the best to adopt from every point of view. DUDLEY BUXTON, Assoc. Ed., v. E-34.]

The pulse-rate is increased by hæmorrhage; quickening of pulse and respiration means an overdose. The breathing-rate is increased reflexly by certain manipulations of the anus, rectum, peritoneum. *Campbell*, v. E-34.

[Usually, quickened breathing indicates a too shallow zone of anæsthesia, requiring more ether. Respiration and color should always be watched. Any cyanosis renders it imperative to give patient more air. DUDLEY BUXTON, Assoc. Ed., v. E-34.]

Apparatus to warm the ether and permit rapid administration. *Bullard*, v. E-34.

MISCELLANEOUS ANÆSTHETICS.

A. C. E. MIXTURE. Chloroform and ether, when mixed, give rise to a vapor of varying and uncertain composition. *Truman*, v. E-35.

In the A. C. E. mixture alcohol tends to equalize the evaporation of the other constituents. *Silk*, v. E-35.

Disproportion indicated by Truman desirable; the most dangerous period is the beginning, corresponding with that of excess of ether. *Marshall*, v. E-35.

Disproportion may be avoided by nebulizing in Oppenheimer's or any such globe-inhaler. *Taylor*, v. E-35.

[A. C. E. mixture should never be given from a Clover inhaler, as it needs far more air than is afforded by that apparatus. DUDLEY BUXTON, Assoc. Ed., v. E-37.]

Dangers. Two deaths from A. C. E. mixture reported,—one in fleshy, anæmic subject; the other also in fleshy, but alcoholic, subject. v. E-35.

ANTIPYRIN. For anæsthesia of bladder; less anæsthetic than cocaine, but less toxic. Antiseptic. Useful in 2 to 4 per cent. for examination with cystoscope, metallic sound and lithotrite, crushing small stones, and for nitrate-of-silver-solution applications. No untoward effects. *Pousson*, v. E-41.

Has paralyzing influence upon mucous membrane, skin deprived of epidermis, nerve-trunks, muscles, and cerebral cortex. *Scofone and Battistine*, v. E-42.

BROMIDE OF ETHYL. Well tolerated by patients suffering from heart disease. *Hafter*, v. E-40.

Injurious effects of ethyl-bromide inhalation due to retention of compound in the body; undergoes decomposition, resulting in formation of compounds having a more toxic effect than the ethyl-bromide itself. *Hennicke*, v. A-70, 71.

Dose varies with age: 2 to 10 years, 3 to 4 drachms; over 12 years and adults, 4 to 7 drachms, according to general health, entire dose being given at once. *Cumston*, v. E-40.

Of great service for short operations. Administration should not be prolonged beyond one or two minutes. Only pure, perfectly-limpid bromide, presenting no garlicky odor, should be used. *Ladreit de Lacharrière*, v. E-40.

[Others have found two grave dangers in bromethyl,—extremely common presence of impurities, which render it very perilous, and its depressant action upon the heart. Many after careful trial speak well of it for brief operations, but caution against its use in prolonged cases. The inhaler, once removed, should never be re-applied. DUDLEY BUXTON, Assoc. Ed., v. E-41.]

COCAINE. 3000 operations without untoward results. Anæsthesia by infiltration. 1 to 1000 cocaine solution, using 0.2- to 0.3-per-cent. solution of common salt in ordinary pure water, distilled water being toxic, subcutaneously. Small spot of skin anæsthetized near seat of operation with chloride of ethyl and few drops cocaine solution injected; in bulla formed a few drops more; in second bulla a few drops more, until seat of operation surrounded. Laparotomy, amputation, among operations performed. *Schleich*, v. E-37.

3200 operations without slightest anxiety. Complete anæsthesia and no general symptoms, provided no stronger solution than 1 per cent. employed, 1 gramme (15 minims) being injected at a time; more than 10 to 15 injections—10 to 15 centigrammes ($1\frac{3}{4}$ to $2\frac{1}{4}$ grains)—rarely required. Contra-indicated in strictly major operations. It is of special value in organically diseased subjects. *Réclus*, v. E-37, 38.

Complete castration by White's method. Scrotal sac manipulated so as to relax dartos and cremasters, and rubber band passed around root of sac. $\frac{1}{2}$ drachm of sterilized 4-per-cent. solution injected in the line of incision and 5 minims below constricting band. It is absolutely painless. *Bryson*, v. E-38.

For local anæsthesia in skin diseases 2-per-cent. solution of cocaine best; using needles slightly bent at an angle allows injections to be made into derma with greater facility. Maximum dose to be injected 1 grain. *Dubreuilh*, iv. A-57.

Cocaine solution with cataphoresis for small operations. Aconitine with cocaine

more effectual than either alone; helleborine, 3 or 4 drops of a 1-per-cent. solution,—all with cataphoresis. *W. N. Sherman*, v. B-15.

Dangers. Leucocytes increase in volume and become paralyzed at the seat of the injection. Pulmonary embolism a possibility. *Maurel*, v. E-38, 39.

Thrombosis a possible complication. *Bryson*, v. E-39.

Four deaths from literature previously reported; 1 drachm 4-per-cent. solution in urethra; 20 minims of same solution in urethra; free application of same sol. to burn; 20 minims, renewed in ten minutes, injected hypodermically. *Mattison*, v. E-39.

Dangerous symptoms from urethral injections of ½ drachm 10-per-cent. solution. *Schede*, v. E-39.

Dangerous symptoms from 1 grain of cocaine hydrochlorate in hæmorrhoids. *Irving Miller*, v. E-40.

[A source of danger in cocaine anæsthesia is the knowledge on the part of the patient that an operation is being done on him. Apprehension lest pain be experienced produces faintness in many cases and may produce fatal syncope. Danger of initiating cocaine habit also too real to be overlooked. Extreme capriciousness of the drug and narrow escapes following its use have made many surgeons extremely shy. DUDLEY BUXTON, Assoc. Ed., v. E-40.]

COLD. Injection into region to be operated upon of glycerin, oil, or pure water below freezing-point. *Létang*, v. E-42.

FORMANILID. Same effects as antipyrin. *Scofone and Battistine*, v. E-42.

GUAIACOL, in 10-per-cent. solution in olive-oil, causes disappearance of pain in burns. Hypodermically, same effect as cocaine. Excellent for removal of teeth, cysts, for abscesses, etc. *Lucas-Championnière*, v. E-41.

Guaiacol not valuable as a local anæsthetic. *Magitot*, v. A-86.

Case in which, with scarcely more than 15½ minims of guaiacol as anæsthetic, there was rather marked hypothermia and syncope. Produces anæsthesia, but not without danger. *Ferrand*, v. A-86.

Guaiacol an anæsthetic, but essentially a vaso-constrictor, and for that reason dangerous. *Laborde*, v. A-86.

[I have not found guaiacol of much use. DUDLEY BUXTON, Assoc. Ed., v. E-41.]

INSTRUMENTS. Inhaler to maintain equable temperature around anæsthetic used. *Carter*, v. E-43.

[Opinions expressed by those who had used it not wholly favorable. DUDLEY BUXTON, Assoc. Ed., v. E-43.]

Modification of Junker's inhaler to facilitate concentration of vapor to special requirement. *Vulpius*, v. E-43.

Chloroform-dropper. *Holtzclaw*, v. E-45.

Disapproval of new Clover inhaler, owing to impossibility of cleansing or disinfecting it. *Bell*, v. E-45.

[To obviate this, I use instrument of my own, on the principle of Clover's larger inhaler, but which can be taken to pieces and thoroughly cleansed. Patient need never rebreathe exhalations, if the inhaler is properly managed. Berclo-Rumboll modification of Clover's inhaler also gives free exit to all the patient's exhaled air. DUDLEY BUXTON, Assoc. Ed., v. E-45.]

POSTURE DURING ANÆSTHESIA. Orthodox mode of raising the trunk and legs a mistaken one; adds embarrassment to the dilated heart by increasing thoracic blood-pressure and allowing abdominal viscera to roll against the diaphragm. *James McMunn*, v. E-45.

Epiglottis is not the cause of obstruction in arrested respiration in anæsthesia. If the head is extended and simultaneously projected forward, both the tongue and the epiglottis are raised and the soft palate is so drawn as to permit of free breathing through the mouth as well as the nose. *H. A. Hare*, v. E-46.

[For operations about the mouth, full extension of the head upon the trunk answers admirably, in many cases,—*e.g.*, staphylorrhaphy,—for removal of post-nasal adenoid growths, etc.; it produces some congestion of the head- and neck- vessels, which, in certain subjects, induces a very undesirable amount of bleeding. The horizontal posture is, on the whole, the best; the lateral position is not always possible in stout persons; short-necked persons also bear the lateral posture badly. It is wise to place the pillow well under the shoulders; in this way just sufficient extension of the head upon the trunk is allowed. DUDLEY BUXTON, Assoc. Ed., v. E-46.]

VOMITING AND COLLAPSE DURING ANÆSTHESIA. Atropia internally, combined with minimum amount of ether, properly given, might cause ether vomiting to be greatly reduced. *J. B. Blake*, v. E-47.

[Minimum quantity of ether has more to do with the lessening of ether vomiting than has the atropine; two important points: (1) care must be taken that the patient does not swallow mucus and saliva impregnated with ether; (2) he must not be lifted and moved about while he is under ether. With some persons, however, severe vomiting will take place whatever precautions are adopted. DUDLEY BUXTON, Assoc. Ed., v. E-47.]

COMPRESSION OF PRÆCORDIUM. Case in a child, apparently dead, in which the König-Maas method—rapid compression (about 120 per minute) of the præcordium—followed by ultimate recovery. Seven minutes had elapsed during which neither

ANÆSTHESIA (continued).
heart-beat nor respiratory effort could be detected. *Leedham Green*, v. E-47.

LAVAGE. Number of cases of nausea and vomiting after anæsthetics in which lavage is of benefit. *Stavely*, v. E-48.

NITRITE OF AMYL. Great reliance on immediate use of nitrite of amyl, combined with artificial respiration. *W. M. Killen*, v. E-48.

It is at the initial stage of heart-failure that it is invaluable. *J. H. Marsh*, v. E-48.

[Whatever value nitrite of amyl may possess, it does not, I think, act as an antidote to chloroform. I have found it most serviceable in failure of the circulation from prolonged severe operations, in collapse, and fear-syncope. Nélaton's inversion method is the best procedure in cardiac failure when no pulmonary or venous engorgement; artificial respiration stands *facile princeps* for cases of failure of respiration when due to narcotism of medullary centres. Strychnine hypodermically of greater value when given before the anæsthetic than later. For heart-failure and cessation of respiration very large doses requisite. DUDLEY BUXTON, Assoc. Ed., v. E-48.]

RHYTHMICAL TRACTION OF THE TONGUE. Laborde's method successfully employed in a case in which flagellation, artificial respiration, and galvanism had been tried in vain. *Labbé*, v. E-48.

Laborde's method advocated, alternated with flagellations of the epigastrium with a wet cloth. *Verneuil*, v. E-48.

SALT SOLUTION. Infusion of salt solution in heart-failure advocated. *Rein*, v. E-48.

SPARTEINE. When from $\frac{3}{5}$ to $\frac{3}{4}$ grain of sparteine and $\frac{3}{20}$ grain morphine injected an hour before operation, rapid narcosis produced and easily maintained with little chloroform, if heart regular. *Langlois and Maurange*, v. E-49.

STIMULANTS. Judging from appearances of the exposed brains that stimulants exert a powerful exciting and energizing effect, first on the heart, then on the circulation in the brain and medulla, they should always be given in connection with strychnine. *Bedford Brown*, v. E-49.

Subcutaneous injections of diluted cognac in chloroform narcosis, when face of patient becomes pale and pulse weak and small, advantageous. *Poucel*, v. E-49.

TRACHEOTOMY. When death apparent, tracheotomy absolutely indicated. Allows of artificial respiration to its fullest extent or direct insufflation by means of a cannula. *Poncet*, v. E-49.

Cases in support of Poncet's views; one of the patients recalled to life more than an hour after apparent death. Tracheotomy succeeds at a later period than any other procedure. *Gerbaux*, v. E-50.

[It is difficult to understand how tracheotomy can benefit a patient unless the air-passages are blocked by some obstruction. Poncet's cases are very striking, and his reasoning carries weight, even though it appears based upon empiricism. Whether intubation of the larynx or a simple correction of a faulty position of the head, with vigorous artificial respiration, would not answer as well as tracheotomy must, for the present, remain an open question. DUDLEY BUXTON, Assoc. Ed., v. E-50.]

TAPPING OF ASCITIC FLUID. At Lawrie's request, removal of $2\frac{1}{2}$ gallons of ascitic fluid to facilitate efforts to obtain artificial respiration, which until then had been futile. *Hehir*, v. E-50.

[The desirability of rapidly removing fluid from abdomen or thorax when death appears imminent commends itself to every practical anæsthetist; but I have several times seen alarming cardiac arhythmia arise from interference with intra-thoracic and intra-abdominal pressure. In cases with pendulous bellies and barrel-shaped chests Sylvester's method is difficult and, as a rule, ineffectual. Following modified plan more useful: (1) air-passages cleansed; (2) patient's arms drawn from his sides; (3) upper half of thorax grasped by two hands, while rapidly-repeated thrusts are made downward and inward. This will, as a rule, ventilate the lungs more thoroughly than other methods. Laborde's method not successful in lower animals. I have frequently found that dragging upon the tongue tends to restore natural chest-movement. The same procedure is of value in spasmodic fixation of the glottis. DUDLEY BUXTON, Assoc. Ed., v. E-50, 51.]

ANAL FISSURE.

TREATMENT. Fissure located and solution of cocaine applied. After five minutes cauterized with 1 or 2 drops pure ichthyol. Repeated daily four or five times, when dilatation performed with Nélaton's dilator and entire surface of fissure touched with ichthyol; 10 to 20 sittings required. *Chéron*, iii. D-32.

Pure ichthyol applied morning and evening, and after each defecation, by means of a pencil introduced into anus and rubbed into parts with a little pressure. *Van der Willigen*, iii. D-32.

Dilatation acts by producing reflex atony of sphincters. *Quénu*, iii. D-32, 33.

ANCHYLOSTOMA DUODENALE.

See INTESTINES: INTESTINAL PARASITES.

ANEURISM OF ARTERIES AND VEINS.

ARTERIES. Solely a consequence of alter-

ation of arterial walls, particularly arteritis. Alcoholism accounts for great frequency of this affection in certain countries. Old classification as mixed-internal, mixed-external, cystogenic, and dissecting aneurisms does not exist. Localization in arterial coats depends upon the more or less advanced degree of sclerosis or atheroma. *Duplaix*, i. B-68.

Of 19 patients 47 per cent. had had syphilis, all under 50 years of age, which illustrates the relation of precocious arteriosclerosis and syphilis. *Frænkel*, i. B-68.

AORTA. Relatively frequent phenomenon is repeated occurrence of hæmoptysis preceding the opening of the sac into the bronchial tubes, due to the existence of a small communication between aneurism and latter. *Hampeln*, i. B-68.

Ascending motion of the trachea—Olivier's sign—showed in two cases by tracings in form of slight ascension of graphic line preceding that of the radial pulse. *Cavazzani*, i. B-69.

In two cases a rhythmic shake of the head, synchronous with the cardiac systole, observed; due to downward traction of left bronchial tube and trachea by the aneurism at each diastole. *Feletti*, i. B-69.

Case of multiple aneurisms of abdominal aorta and iliac arteries, with absence of left common iliac. Marks of an extensive earlier rupture of iliac which had spontaneously healed. *T. Mitchell Prudden*, i. B-70.

Case of aneurism of the ascending aorta. Two Macewen needles inserted and allowed to remain for twenty-four hours; repeated four times. Satisfactory results. *Bignone*, iii. J-2.

Aneurisms of the thoracic aorta may be most safely attacked after medical treatment has failed, by introduction of small quantity of inelastic wire. *Bristow*, iii. J-2.

Case in which aortic aneurism perforated superior vena cava, patient dying from an attack of œdema glottidis. *Alex. Bruce*, iii. J-2.

AXILLARY. Cases of axillary aneurism, with successful ligation of subclavian artery. *Neugebauer*, *Horwitz*, *W. E. Waters*, iii. J-5.

Case of a man whose innominate artery was successfully ligated in 1893 for subclavian aneurism. Only living example in Europe. *Coppinger*, iii. J-5.

BRACHIAL. Case diagnosed as a neuroma of median nerve found, on exposing swelling, to be a cured traumatic aneurism of the brachial artery. On account of excruciating pain artery cut above and below aneurism and sac dissected out. *Bland Sutton*, iii. J-5.

CAROTID AND CAVERNOUS SINUS. Case of aneurismal varix of the left internal carotid artery and the cavernous sinus. Has remained unaltered for twenty-three years. *G. E. Williamson*, iii. J-16, 17.

EXTERNAL ILIAC. Case of traumatic aneurism of both external iliac arteries. *T. G. Morton*, iii. J-8.

Case of successful extirpation of an aneurism of the right external iliac artery, occupying whole right iliac fossa and as large as the head of a child at term. Recovery uneventful, and patient following his occupation as a clown. *Quénu*, iii. J-9.

FEMORAL. Case of femoral aneurism due to a kick in the groin. External iliac ligated, using Ballance and Edmunds's "stay-not"; eventual sloughing of anterior tibial muscles; amputation. Aneurism now quite solid and not larger than a walnut. *Albert Lucas*, iii. J-9.

Case of ligation of the femoral artery for secondary hæmorrhage. *R. N. Hartley*, iii. J-9.

Case of aneurism located immediately under Poupart's ligament successfully treated by digital compression. *Sawtelle*, iii. J-10.

Case of aneurism of terminal end of femoral artery; tumor composed of two parts,—one, a cyst, with thick walls, filled with brownish fluid, the other, situated below the first, consisting of a series of small, irregular cavities filled with arterial blood from the deep femoral. *Israel*, iii. J-10.

Case of false traumatic aneurism of femoral artery in which operative procedures were followed by death. *Drschenewitsch*, iii. J-10.

GLUTEAL. Case of diffuse aneurism of deeper portion of buttock. Incision gave rise to dangerous primary and secondary hæmorrhages, which yielded to tamponing. Patient finally recovered. *Troy*, iii. J-8.

ILIO-FEMORAL. Case of large iliofemoral aneurism. Ligation of external iliac artery. Patient up by the forty-seventh day. Three months later aneurism in opposite groin. Operation repeated; recovery much more rapid than on first occasion, collateral circulation being established more promptly. Patient a carpenter. *Makins*, iii. J-9.

INNOMINATE. Case of ligation of innominate artery for aneurism; seventeenth case recorded. Successful results in these cases prematurely reported. Ligature of innominate not of necessity fatal, yet always an operation fraught with danger. *Burrell*, iii. J-5, 6.

Double distal ligature of a large, thin-walled, innominate aneurism which had produced forward dislocation of the right clavicle. Right subclavian and common carotid simultaneously ligated; wounds healed by primary intention. Three weeks later consolidation had not taken place in the aneurism, but pulsation had become much less strong. *Coppinger*, iii. J-7.

ORBITAL. Case showing excellent result of ligation of right common carotid artery in

ANEURISM OF ARTERIES AND VEINS (continued).

1864 for aneurism of the orbit. *T. G. Morton*, iii. J-1.

POPLITEAL. Case of pulsating tumor of the popliteal space simulating aneurism; illustrates importance of using exploring-needle in deep-seated, fluctuating tumors. *Marmaduke Shield*, iii. J-10.

Case of double popliteal aneurism treated by compression; three months later both sacs consolidated. Iodide of potassium, administered from the start, still continued. *Golding-Bird*, iii. J-10.

Case of popliteal aneurism showing, as only symptom, cramp-like pain in the leg. *J. Hutchinson, Jr.*, iii. J-10, 11.

Cases of successful ligation of femoral artery for aneurism. *Kirmisson*, *E. R. Kirby*, *Reboul*, iii. J-11.

Case of popliteal aneurism cured by forced flexion of the knee. Treatment begun by half-flexion, which is much less painful. *Alessandro*, iii. J-11.

Case in which forced flexion, graduated compress, shot-bag, three-pad tourniquet tried without success. Femoral artery tied at the apex of Scarpa's triangle, the stay-knot of Ballance and Edmunds being used. Discharged in three weeks. *Keen*, iii. J-11.

SCIATIC. Case of aneurism of the sciatic artery the result of a fall. Presence of two cavities,—one small, limited, aneurismal, behind and outside of ischium; the other, very large, badly defined, occupying entire buttock, non-pulsatile, and covering first cavity. *Guelliot*, iii. J-7, 8.

SUBCLAVIAN. Study of 115 operated cases of subclavian aneurisms. Deductions as to treatment: Strict asepsis the sheet-anchor. Best plan to ligate first portion of subclavian with a double or, better, triple, non-contiguous, absorbable ligature without rupturing the coats. When it is decided to ligate subclavian and common carotid simultaneously, best to first ligate subclavian. In idiopathic aneurisms defective general condition of the patient should be borne in mind. *Souchon*, iii. J-2, 3, 4.

In a case of aneurism of the subclavian and carotid arteries, right vocal cord fixed in the cadaveric position and right side of neck and right subclavian fossa exhibited pulsation. *E. Mayer*, iii. J-4.

Case of subclavian aneurism. Ligature placed below the aneurism on the subclavian and another on the carotid. Excellent result obtained. *Ch. Monod*, iii. J-4.

Traumatic aneurism of the posterior mediastinum, which had ruptured into the œsophagus. *Pye-Smith*, iii. J-4.

TEMPORAL. Traumatic aneurism of the anterior temporal artery. The uncommon seat and close likeness to a suppurating hæmatoma in early period make case noteworthy. *Burton Robinson*, iii. J-1.

TIBIAL. Specimen of aneurism of anterior tibial artery just where it pierces interosseous membrane between tibia and fibula. Head of fibula drawn outward forcibly at each pulsation. Cure by digital compression of femoral artery; obliteration of lumen shown. *De Forest Willard*, iii. J-11.

TREATMENT OF ANEURISMS.

MEDICAL TREATMENT. Cases reported in which iodide of potassium has been of benefit does not sustain credit accorded that drug as a curative agent; still it ought to be tried in cases where there is even but a suspicion of syphilitic taint. *Bristow*, i. B-70.

[It may further be said that the drug usually seems to promote the comfort of the patient,—a factor of considerable importance in the treatment of a chronic, incurable, and often distressing disease. WHITTIER AND VICKERY, Assoc. Eds., i. B-71.]

Assertion that iodide of potassium has the power of lowering blood-pressure contradicted by sphygmomanometer. *Alexander James*, i. B-71.

Marked improvement from hydrated calcium chloride in doses of 1 drachm daily. *S. Solis-Cohen*, i. B-71.

SURGICAL TREATMENT. Superiority of extirpation over ligature. 76 cases treated by incision and extirpation; but 1 death; mortality 8.3 per cent. with ligatures. Recovery more complete when extirpation employed. *Pierre Delbet*, iii. J-12.

Removal of sac prevents any chance of recurrence of pulsation and extension of the disease. *Littlewood*, iii. J-12.

Return of pulsation and sloughing of the sac avoided by extirpation. Chances of gangrene not greater than after Hunterian. Extirpation of the sac the proper treatment for diffuse aneurisms; in other cases the Hunterian plan preferred. *Ward*, iii. J-13.

Excision for diffused aneurism; but, for an ordinary case of true aneurism, aseptic ligature. *Jessop*, iii. J-13.

Extirpation the ideal method. Proximal ligation is to be reserved for cases of idiopathic or spontaneous aneurisms in which age of patient or an enfeebled condition would make a prolonged operation hazardous and when position of tumor precludes possibility of extirpation. *Jos. Ransohoff*, iii. J-13.

Extirpation not practicable in only a few cases; cases in which proximal side of sac cannot be reached; cases in which ablation would necessitate serious injury of important structures. *Wm. Thorburn*, iii. J-14.

Extirpation when possible and easy. Ligation no longer admissible; it exposes the patient to gangrene, rupture, and recurrence, while adhesion of sac to neighboring

nerves often causes violent pain. *Chaput*, iii. J-14.

Electrolysis in sacculated aneurisms. 10 feet of gold wire of sufficient calibre to form spirals in the centre of cavity; current closed without interruption seventy-five minutes. No pain. *D. D. Stewart*, iii. J-14.

Artery-forceps to afford firmer grip. *E. Mansel Sympson*, iii. J-14.

ARTERIO-VENOUS.

AORTA AND INNOMINATE. Case of traumatic arterio-venous aneurism of the arch of the aorta and the innominate vein. Thrill most distinct over manubrium sterni, and could be followed down internal jugular and left brachial veins and over the skull in the course of the sinuses. Post-mortem showed opening in arch of aorta between points of origin of carotid and innominate arteries, which communicated directly with left innominate vein, dilated at this point to the size of an orange. Long survival after accident remarkable. *Colzi*, iii. J-17, 18.

BRACHIAL ARTERY AND VEIN. Case of arterio-venous aneurism of forearm following a bullet-wound. Brachial artery tied; mass carefully dissected out. Recovery complete. *Bousquet*, iii. J-18, 19.

FEMORAL ARTERY AND VEIN. Case of arterio-venous femoral aneurism following a cut on the inner side of the right thigh. Extirpation and recovery. Eighteen similar cases in literature in which complete extirpation of such an aneurism successfully performed, no gangrene or secondary hæmorrhage following. *T. A. Hedlund*, iii. J-19.

Case of traumatic ossifying arterio-venous aneurism of the deep femoral artery and vein. *Zoege v. Manteuffel*, iii. J-20.

Case of complete obliteration of femoral vein and artery and internal saphenous vein at the base of Scarpa's triangle in the course of tuberculosis of the inguinal glands. *Hamant*, iii. J-15.

SUBCLAVIAN ARTERY AND VEIN. Fourteen cases of arterio-venous aneurism of subclavian published. Case in which there was no syncope at the time of accident and seven months after development of aneurism no functional trouble, *Wedenkind*, iii. J-18.

SURGICAL TREATMENT. Case of varicose aneurism of the thigh; transperitoneal ligation of external iliac artery. *John B. Roberts*, iii. J-20.

No operation, as a rule, needed, since condition is not progressive. When operation required, it is proper to ligate both ends of the artery, but not the vein. *J. Ashhurst*, iii. J-20.

CIRSOID ANEURISM. Success of case of large cirsoid aneurism of the scalp. Blood-supply controlled by acupressure-pins applied to external terminal branches of nutrient arteries. Subsequent crucial incision and vascular tissue entirely removed between skin and periosteum of flat bones. Compression applied; complete recovery. *W. S. Forbes*, iii. J-20, 21.

Case of cirsoid aneurism with ligature of the common carotid artery. Decided improvement, notwithstanding heavy work. *Wm. D. Hamilton*, iii. J-21.

MULTIPLE ANEURISMS. Patient in whom, during a period of four years, there had formed four successive aneurisms, last proving fatal. *Jessop*, iii. J-11.

Case with two aneurisms of left thigh,—one, the size of an egg, at Scarpa's triangle; the other, as large as a cocoa-nut, at the opening through the adductor magnus. Superficial femoral ligated in middle of Scarpa's triangle, suppuration and two secondary hæmorrhages ensuing; wound enlarged and bleeding ends tied. Only case on record of cure of double aneurism of superficial femoral artery by operative procedure. *Souchon*, iii. J-11, 12.

RUPTURE OF ANEURISMS. Ten cases of sudden death due to rupture of thoracic aneurisms previously unsuspected. Deaths, although sudden, not instantaneous; sometimes considerable period may intervene. Aneurisms of small size and fusiform in character may rupture suddenly. *F. W. Draper*, i. B-69.

Case in which death did not occur for five hours after onset of symptoms,—severe abdominal pain and intense rectal tenesmus. *Philip James*, i. B-70.

Case of rupture of the horizontal portion of the arch of the aorta in which patient lived nine days. At post-mortem dissecting aneurism found and an effusion into left pleura of 2½ quarts of blood. Atheroma in horizontal portion of aorta rarely observed. *Nissim*, i. B-70.

Case of rupture of an aortic aneurism into superior vena cava. Point of greatest intensity of murmur had suddenly risen from third to second cartilage. Explained post-mortem by finding two ulcers in vena cava. *Alex. Bruce*, i. B-70.

TREATMENT. In a case of rupture violent hæmorrhage arrested by rapidly clearing clots and dusting 1 drachm of antipyrin on it. A pad of absorbent cotton placed over this antipyrin caused immediate formation of coagulum. *Broussolle*, i. B-71, 72.

ANEURISM OF THE HEART.

DIAGNOSIS. Case which presented an increased area of cardiac dullness; a musical sound quite distinct from normal sounds and obscuring them. It was humming in character, high in pitch, continuous throughout the entire cardiac cycle, rising in systole, falling in diastole, audible from apex to base, but loudest at the apex. At necropsy,

ANEURISM OF THE HEART (contd.). small, ragged opening found in the posterior wall of the left ventricle, in an aneurismal dilatation of wall. Indicates a heart-cavity unemptied at the end of its systole and an aneurism. *Embley*, i. B-67.

Two conditions necessary for formation of aneurisms of sigmoid valve: inflammation of the affected valve and pressure of blood upon the affected point, causing depression of the sac. When rupture occurs musical murmur heard, appearance of which, following previous murmurs, will aid in diagnosis. *Sargent*, i. B-67.

Aneurism of left ventricle, with sudden death. Enormous hypertrophy of the heart, hidden during life by interposition of the lung; aorta sclerotic. *Schwalbe*, i. B-67.

Case of aneurism of left auricle. *Dreschfeld*, i. B-68.

Specimen of the left ventricle of a fibroid heart. *Loomis*, i. B-66.

Case of aneurismal dilatation of anterior wall of ventricle. *Gouget*, i. B-68.

Aneurism of the apex in which there was infarct from obliteration of coronary artery. *Marie and Rabé*, i. B-68.

Aneurism of the apex following an apoplectic seizure. *Claude*, i. B-68.

ANGINA LUDOVICI. See LUDWIG'S ANGINA.

ANGINA PECTORIS.

ETIOLOGY AND PATHOLOGY. Due to a disturbance in the sympathetic nervous system, and affects all parts under that system. *Sir B. Ward Richardson*, i. B-27.

Two cases in which angina pectoris, gouty arthritis, and diabetes were associated; angina probably due to disease in circulatory apparatus; changes in heart noted in both. *Ebstein*, i. B-27.

Necropsy showing subacute aortitis with almost complete obliteration of opening of the two coronaries. *Huchard*, i. B-27.

Case in which periodicity was present as a marked feature, suggesting malaria as cause. Quinia sulphate, 7½ grains daily, caused angina to disappear. *Koudriavzev*, i. B-27, 28.

Gastric disorder the most frequent cause of angina after sclerosis of coronary arteries. Eight cases in which attention to stomach and intestines led to recovery. *Grusdew*, i. B-28.

In tabetic angina no organic lesion of the heart or large vessels exists to explain phenomenon of angina. *Debove*, i. B-28.

DIAGNOSIS. In angina pectoris caused by a coronary lesion, pain tearing, burning, and substernal; whereas in tobacco-angina attack spontaneous, without effort on the part of the heart, and lasts several hours. Pain often substernal, but also frequently præcordial. In true angina pectoris least movement increases attack; that due to tobacco is in nowise influenced by movement. *Potain*, i. B-28.

TREATMENT. Under methylene-blue crises diminish in frequency and intensity; finally cease altogether. Administered daily for a time, then every other week. *G. Lemoine*, i. B-28.

Diabetic and gouty varieties of angina pectoris do not exist. Attacks observed during these maladies not directly caused by gout or diabetes, but by a concomitant aortic lesion. Gout nearly always induces arteriosclerosis. *Huchard*, i. B-28, 29.

Nitrite of amyl best administered in a mixture combined with glycerin, 3 minims to 1 drachm, adding 3 drachms of water, and taken at intervals in the course of an hour; it may be further diluted, if desired. *Sir B. Ward Richardson*, i. B-29.

ANTEVERSION OF THE UTERUS. See UTERUS, DISPLACEMENT OF.

ANTHRAX.

TREATMENT. Attention to general health and subcutaneous injections of pure carbolic acid, 1 part, in glycerin, 5 parts, 20 to 30 minims being injected around the sloughing tissues, but not into them; needle introduced about 1 inch and drawn out gradually while pressing out the solution. Surface then dressed with carbolic-acid fomentations 1 in 40, continued until separation of slough. (R. M. West.) Removal of focus with galvano-cautery as soon as recognized and parenchymatous injections of peroxide of hydrogen followed by carbolic-acid—1 part to 50 of water—compresses as dressing. [EDITOR.]

ANTIFEBRIN POISONING. See ACETANILID.

ANURIA.

Case attributed to collapse following alimentary poisoning and intestinal storm. *Hensley*, i. E-40.

Complete anuria lasting ten days without convulsions or obstruction in urinary passages. At post-mortem granular kidney found. Potassium salts the probable cause. *Bampton*, i. E-41.

Three cases due to presence of calculi in ureters. *Oakley*, i. E-41.

TREATMENT. Suppression, without noticeable symptom, in a girl aged 18, lasting forty-eight days despite treatment. Finally overcome by electric current and strychnine. *Rininger*, i. E-41.

Case lasting three days, due to contraction of sphincters following chronic malarial infection, disappearing after subcutaneous injection of 7 drops of Fowler's solution, followed by another injection of 15 grains of quinia sulphate. Cause neurosis of cen-

tral origin of malarious nature. *Ochevsky*, i. E-41.

APHASIA. (See also BRAIN, DISEASES OF.)

Systematic recovery occurs in cases in which the centres of speech, shocked, but not destroyed, by cerebral lesions which caused aphasia, gradually resume their functional activity. *A. Pitres*, ii. A-16.

In cortical motor aphasia patient recovers faculty of reading gradually in following order: (1) appearance of the word; (2) association of syllables; (3) association of letters forming each syllable. Exact reverse of learning to read in the child. *Thomas and J. C. Roux*, ii. A-16.

Disturbances in fifteen cases of cortical motor aphasia due to destruction of Broca's convolution, corresponding exactly to description given by Trousseau. Patients read as badly as they write; incorrect to maintain that they preserve ability to read mentally. *Dejerine*, ii. A-16.

Sole, well-demonstrated anatomical localization is that of the foot of the left frontal convolution. *Bernheim*, ii. A-14.

If congenital aphasia is found in a child under 3, especially if rickety or hydrocephalic, it may be due to a simple retardation of development; if age more than 3, prognosis must be very guarded. *Herzen*, ii. A-14, 15.

Case of Jacksonian epilepsy accompanied by motor aphasia without agraphia, conclusively proving that former may exist without the latter. Tendency to regard language as a special and isolated phenomenon among manifestations of nervous centres too great. *Prevost*, ii. A-15.

Case occurring as result of wound in left side of skull 9 centimetres from horizontal circumference, passing by superior border of auditory meatus and supra-orbital margins, 7 centimetres from sagittal suture perpendicularly, 1½ centimetres in front of left auditory canal. Spherical fragment separated and pressed down one centimetre into wound. As soon as removed speech became normal. *Dörrenberg*, ii. A-15.

Case of syphilitic cerebral apoplexy, right hemiplegia, motor aphasia, and word-blindness without blindness for words or objects. Visual field showed no contraction or hemianopsia. *Lannois*, ii. A-17.

Case of word-blindness with right hemiplegia which presented symptom of mirror-writing. There exists in right and left hemisphere a group of cells corresponding to movements of the hand in writing. *Ch. Nicolle and A. Halipré*, ii. A-17.

Case of word-blindness in which autopsy showed generalized atrophy of the brain. Small foci in right occipital lobe and an extensive area of softening in left occipital lobe, involving great portion of calcarine fissure, the lingual and fusiform lobes; changes in Ammon's horns. The forceps minor was completely destroyed and larger part of optic sheath softened. *E. Redlich*, ii. A-17.

Two instances of aphasia occurring during attacks of uræmia. Aphasia was only of an ephemeral character, ceasing after thirty-six hours. *Dupré*, ii. A-18.

Additional form of visual defect in which there is not only word-blindness, but also failure to recognize the individual letters of which words are composed. *Hinshelwood*, ii. A-18.

APOPLEXY. See CEREBRAL HÆMORRHAGE.

APPENDICITIS, TYPHLITIS, PERITYPHLITIS, PARATYPHLITIS.

ETIOLOGY AND PATHOLOGY. An inflammatory process arising in the cæcum, vermiform appendix, and surrounding tissues. Appendix apt to frequently become inflamed, because pathogenic microbes cannot as easily be eliminated as from other parts. Certain analogy to tonsils. *Sahli*, iii. C-59.

Foreign bodies seldom the cause of appendicitis. *Fowler, Helferich*, iii. C-59, 60.

Same views; inflammatory process being due to infection by bacillus coli communis. *Lange*, iii. C-60.

Microscopically alterations present could be compared to folliculous pharyngitis. *Pilliet*, iii. C-60.

Great frequency of this affection due to fact that appendix is a functionless structure of low vitality, removed from direct fæcal current; bacterium coli commune always present and capable of great virulence when constriction of the appendix or lesions of its mucous membrane or other coats present. *J. William White*, iii. C-60.

Acute appendicitis may arise from presence of bacterium coli and the chronic form from the tubercle bacillus or actinomyces. *Czerny*, iii. C-60.

Next to ileum, cæcum and vermiform appendix most frequently altered by ulceration and gangrene in typhoid fever. *Schell*, iii. C-60.

Post-mortem records at Munich fully bear out generally received idea that appendix primarily involved. *Haenel*, iii. C-60, 61.

An infective exudative inflammation following the production of an infection-atrium of any sort in the mucosa, or in the peritoneal covering of the appendix. *R. T. Morris*, i. D-23, 24.

Two cases in which destructive changes began in tubular glands, ulceration allowing infectious elements to reach lymphadenoid tissue beneath. *Walker Schell*, i. D-24, 25.

APPENDICITIS, ETC. (continued).

Follicles invariably affected as well as mucous glands. *Pilliet and Coste*, i. D-25.

Due to capillary thrombosis caused by torsion of appendix with infection by bacillus coli communis. Foreign-body theory cannot be maintained. *Lange*, i. D-25.

Fæcal concretions in forty-six cases with no sign of damage to the organ. Doubtful whether foreign bodies and concretions cause perforative inflammation, but may prepare field for micro-organisms. *Caven and Barhart*, i. D-25.

Cases in which pins were found in appendix; 2 fatal. *Caven and Barhart, McPhedran and Cavan, Roswell Park, Colmer*, i. D-25.

Cases in which apple-, pear-, and grape-seeds were found; one fatal. *Kales, McBurney*, i. D-25.

Piece of bone $\frac{5}{8}$ inch long and $\frac{1}{4}$ inch wide found in appendix of subject, no symptoms having indicated its presence. *Warren Collman*, i. D-26.

Concretions always formed in appendix itself and usually single. *Rochaz*, i. D-26.

Rheumatism may act as etiological agent, constitutional toxic, manifesting itself by an inflammation of lymphoid tissue. *Sutherland*, i. D-26, 27.

Cases in which etiological rôle of rheumatism is shown. *Brazil*, i. D-27.

Two confirmatory cases. Diagnosis from ulceration or perforation very difficult. *Blomfield*, i. D-27.

Heredity similar to that occurring in connection with other inflammatory disorders of lymphoid tissues. Four cases of appendicitis in one family. *Armstrong Atkinson*, i. D-27, 28.

Four cases in one family. *Henry Taylor*, i. D-28.

Heredity lies in tendency to development of uricacidæmia and uricæmia. *Ernest Frazer*, i. D-28.

Fatal case in injudiciously fed child $2\frac{1}{4}$ years old. *Churton*, i. D-28.

Case in which constipation was considered as cause. *G. H. Thompson*, i. D-28.

Case simulating perinephritic abscess. *Mayet*, i. D-28.

Case in which perinephritic abscess occurred as complication. *Atherton*, i. D-28.

Case of areolar abscess about subhepatic veins as result of appendicitis. Coli bacillus in pus. *Achard*, i. D-28, 29.

Hepatic complications most frequent in youth, and in latent forms of appendicitis. Infection occurs most frequently through the portal system, lymphatics playing but secondary rôle. *Berthelin*, i. D-29.

Case complicated with inguinal hernia; pus in sac surrounding cæcum found to contain a motile bacillus of proteus group, showing, inoculated, highly pathogenic characters. *Ohlmacher*, i. D-29.

Psoïtis of appendicular origin. Main symptom: flexion of one or both thighs on pelvis with irradiation of pain, when present, as far as false ribs. *Couraud*, i. D-29.

Case of epithelioma of cæcum and appendix simulating recurrent appendicitis. *Sourdille*, i. D-29.

Case of sarcoma of appendix. *Glazebrook*, i. D-29.

Perforation of small intestine overlooked in connection with appendicitis. May be due to typhoid fever, tuberculosis, intestinal uræmia, foreign bodies, etc. Case in which laparotomy failed to reveal site of operation. *Letulle*, i. D-29, 30.

DIAGNOSIS. Symptoms give no idea of gravity of local lesion; marked disease may exist notwithstanding apparent health. *Damaye*, i. D-25, 26.

Right-sided abdominal pain, increased by motion, with tenderness greatest over appendix; vomiting, raised pulse and temperature appearing suddenly in previously-healthy person sufficient for diagnosis of acute appendicitis. *Heffron*, i. D-30.

Symptoms in a case of mild catarrhal appendicitis cannot at present, with certainty, be distinguished from those marking onset of case of gravest type. *J. W. White*, iii. C-61.

In some cases there is no localization of symptoms at any time. Diagnosis is made almost certain by presence of bunch, usually situated in right lower quadrant of abdomen, or near liver or left side. May be obscured by abdominal distension or muscular rigidity. *Gay*, iii. C-61.

Diagnosis easily established. Localized point of tenderness frequently referred to left side. *Deaver*, iii. C-61.

Method recommended by Edebohls to feel appendix: On deep pressure external iliac artery readily located; following this vessel outward appendix detected, resembling a round or flattened band. *Goodall*, iii. C-61.

If, during an attack, a sudden diffuse pain and other evidences of shock experienced, ulcer of appendix or abscess ruptured into the peritoneal cavity almost certain. *Keen*, iii. C-61.

Temperature absolutely no guide in determining severity of attack. Pulse about only reliable guide. *Syms*, iii. C-61.

Presence of slight œdema over the loin an indication of the presence of deep-seated suppuration. *Symonds*, iii. C-62.

Sometimes difficult to distinguish between appendicitis and pyosalpinx. *R. F. Morris*, iii. C-62.

In two cases appendix attached to left Fallopian tube and bound in adherent mass on that side; in a great number of cases the appendix is adherent to the Fallopian tube on the right side. *Porter*, iii. C-62.

Several cases in which it had been diffi-

cult to make the diagnosis between pyosalpinx and appendicitis. *Brook*, iii. C-62.

In each case possibility of salpingitis must be kept in mind. Uterus and adnexa also thoroughly examined by the combined method: vagina and rectum. *Vineberg*, iii. C-62, 63.

Variety of symptoms often cause hesitation. In one case, five attacks. Symptoms of pericæcal abscess, intestinal adhesions, and soft, rather large appendix only conditions present. In a second case only symptom a painful spot; at least half a pint of pus found. *Routier*, iii. C-63.

In a case existence of appendicitis doubted on account of mild symptoms; two days later urgent symptoms. Appendix found completely necrotic. *Marcy*, iii. C-63.

Cases in which, although diagnosis not absolutely certain, it may be quite justifiable to make exploratory incision. *MacCormac*, iii. C-63.

Totality of symptoms must be considered and exploring-needle not relied on, since negative results worthless and positive evidence dangerous. *Haenel*, iii. C-63.

Preferable to perform an aseptic exploratory section and be proved wrong in diagnosis than to wait until operation rendered necessary by perforation and peritonitis. *Grandin*, iii. C-63.

Errors from displacement of appendix; case in which only left testicle in scrotum and diagnosis of orchitis and ectopia of right testicle made. On operating appendix found instead of testicle. *Tillaux*, iii. C-63, 64.

Form of peritonitis consisting of encysted peritoneal inflammation with multiple arrears of suppuration; latter almost impossible to diagnose. *Nélaton*, iii. C-64.

ATYPICAL CASES. Case presenting irregular swelling, with sinus opening in the groin, and containing hard mass consisting of inspissated fæces. Glycosuria present in this and two other cases. *Leidy*, iii. C-64.

Case in which appendix protruded through fluctuating swelling with an irreducible omental hernia. *Graham*, iii. C-64.

Case in which appendix found destroyed, an extensive ulcer involving head of colon, with perforation large enough to introduce three fingers. No distension or tympanites. In another case appendix free, bound to the colon, having been amputated by the ulcerative process. *Grant*, iii. C-64.

Case in female simulating true pelvic abscess. *Mundé*, iii. C-64, 65.

Prevesical abscess due to appendicitis. *Tuffier*, iii. C-65.

Cases of recurrent appendicitis in a child; caseous lymphatic gland adhering to the cæcum. *G. A. Wright*, iii. C-65.

Case in which tip of vermiform appendix in contact with under surface of liver. *Bland Sutton*, iii. C-65.

Case of perityphlitic abscess in girl; appendix found normal. *Homans*, iii. C-65.

In a case of apparent appendicitis in which exploratory puncture and drainage established, autopsy showed trouble had arisen from perforating ulcer of duodenum. *Bryant*, iii. C-65.

Three cases of perforation of gall-bladder in which extravasation formed tumor in position of high appendical abscess. *Weir*, iii. C-65.

Case in which death occurred from rupture of common iliac vein. *J. C. Lewis*, iii. C-65.

Case of recurrent appendicitis followed by hepatic abscess and septic pneumonia simulating acute phthisis. *Nuding*, iii. C-65, 66.

Case complicated by acute dilatation of the stomach. *Levison*, iii. C-66.

Operation for appendicitis followed by intestinal obstruction. Artificial hernial pouch, intestinal contents gradually constricted. *McBurney*, iii. C-66.

Case of strangulation of appendix in infant 6 weeks old; appendix successfully removed. *Drew*, iii. C-66.

PROGNOSIS. Diffuse peritonitis the cause of 70 per cent. of the deaths from appendicitis. Diffuse septic form and progressive fibrino-purulent form; prognosis much worse in former. *Haenel*, iii. C-68.

TREATMENT. Surgical intervention indicated when peritonitis present, when limited perforation has caused formation of intra-peritoneal abscess, when attacks repeated. *Bergmann*, iii. C-68.

In spreading cellulitis behind ascending colon surgical interference essential; in acute peritonitis very little more hope than internal medical treatment; in simple paratyphlitis interference unnecessary, unless distinct evidence of fluctuation. *Aufrecht*, iii. C-68.

About one-half of cases may be considered as requiring surgical treatment,—when symptoms commence acutely, indicating perforation or gangrene, or when there are no sure signs of improvement on third or fourth day. Passage of flatus a favorable sign of greatest value. *Gay*, iii. C-68, 69.

Operative interference indicated in every case in which onset sudden and symptoms decidedly acute and severe, and in every mild case in which symptoms are unrelieved at the end of forty-eight hours. Certainly indicated whenever firm, slowly-forming mass felt in right iliac fossa or when sudden increase in sharpness or diffusion of pain points to perforation. Offers some hope in beginning of suppurative peritonitis, but useless in general peritonitis with septic paresis of intestines. *J. W. White*, iii. C-69.

Every case, promising or unpromising, should be treated by surgical operation at

APPENDICITIS, ETC. (continued).

the earliest possible moment. *Murphy*, iii. C-69.

Record of sixty-eight cases. Indiscriminate resort to operative interference advocated in the United States inadvisable. Rest, restricted diet, opium. Operative treatment in severe cases when diffuse peritonitis threatened, and in apparently mild cases in which symptoms do not yield to medicinal treatment. Interference in cases of relapsing appendicitis. *Lennander*, iii. C-69, 70.

Prompt surgical interference in interval of attacks an advisable and safe procedure; physical characteristics define clearly situation of appendix. *Bryant*, iii. C-70.

Instances in which there is only one attack much greater than those in which there have been several attacks. Great majority who have passed through stage of suppuration rendered free from further attacks. Operation in absence of adhesions most simple. *Treves*, iii. C-70.

In 57 cases of simple appendicitis, 52 showing appendicular perforation with abscess of surroundings. In 80 cases 20 presented at least one previous attack. Doubts concerning value of certain cases of recovery under medical treatment. *Mathieu, Sonnenburg*, iii. C-70.

Stercoraceous vomiting not a sign for surgical interference, as formerly thought. *Gairdner, Benj. Ward Richardson*, iii. C-70.

Fifty-one cases of recurrent appendicitis operated during intervals between attacks, with but one death. Conservatism about operating during acute attack. No distinction between simple appendicitis and appendicitis with perforation. *Kümmel*, iii. C-70, 71.

If pain and tenderness do not abate within twenty-four to thirty-six hours after purgation with Epsom salts, no time to be lost in securing surgical aid. *Carpenter*, iii. C-71.

Prompt operative interference safest. *Wheeler*, iii. C-71.

Mortality less than 8 per cent. during first week and over 17 per cent. during second week in operated cases. *Steele*, iii. C-71.

Immediate operation when suppuration evident or even probable. *Richelot*, iii. C-71.

All cases of appendicitis should be operated upon as soon as diagnosis clear, but operative interference not advisable in the absence of thoroughly competent surgeon. *Ashton*, iii. C-71.

Too many appendices removed. Large number of autopsies in which evidences of cured appendicitis were present, proving that acute appendicitis could occur with entire cure without operative interference. *Osler*, iii. C-71.

MEDICAL TREATMENT. It should be medical in following cases: appendicular colic, parietal appendicitis, and appendicitis with partial sero-fibrinous peritonitis. *Talamon*, i. D-30, 31.

Purgatives to be deprecated, or only when local symptoms, danger of perforation and of generalized peritonitis less. Castor-oil in teaspoonful doses enough to begin on. *Le Gendre, Sevestre, Moizard, Mathieu*, i. D-31.

Immense majority of cases in adults recover under medical treatment. In children much more grave, but shock from perforation less great in them. *Rendu*, i. D-31.

Opium, though valuable, favors fæcal stasis, so disastrous in some cases. Senna injections preferred, notwithstanding colic sometimes produced. *Ferrand*, i. D-31.

Three cases in which rectal injections of large doses of glycerin were advantageously used. *Joubert*, i. D-32.

Rest; liquid or low diet. Poultices, ice-coil, or ice-bag. Moderately-large laxative enemata when marked general reaction; gray powder or blue mass in 6- or 8-grain doses better when general reaction less pronounced. Salicin or salicylates, in frequently-repeated doses, diminish pain and inflammatory manifestations. Morphine only when absolutely unavoidable; arrests secretory functions. Codeine equally efficacious in some cases. Leeches or wet-cups over painful region in patients of full habit. *Beverly-Robinson*, i. D-32, 33.

Opium in small doses, fluid diet, ice-bag. Operation when symptoms persist or are aggravated third day. Occasional exceptions. *Sahli*, i. D-33.

Operation when pus exists; then absolute rest of bowel by morphine and local antisepsis by charcoal, bismuth, guaiacol, or calomel. *Lange*, i. D-33.

In simple cases, cautious use of enemata to remove irritating intestinal contents. Later tend to break adhesions by peristalsis, open perforative ulcers, and spread infection by intestinal motion. *Schell*, i. D-33.

Hydrotherapy of value. *G. E. Clark*, i. D-33.

In children, opium to quiet intestinal action; ice-bag; cold milk in teaspoonful doses. Avoidance of solids during convalescence. *Schäfer*, i. D-33.

[The opinions of the authors quoted show the swing of the pendulum, which was bound to take place. Surgeons, in giving their opinions, are sometimes apt to forget that their experience deals largely with the cases in which not only the diagnosis of appendicitis has already been made by the medical attendant, but also the opinion reached that operative interference was demanded. The large number of cases in which recovery follows purely medical treatment does not come under the surgeon's

observation. By this criticism I by no means intend to undervalue the importance and imperative need of operative interference in very many cases. My purpose is simply to point out the fact that there is a growing opinion that this interference may be, and often is, pushed too far. J. P. CROZER GRIFFITH, Assoc. Ed., i. D-33, 34.]

SURGICAL TREATMENT. Good-sized incision parallel to outer border of Poupart's ligament, peritoneal cavity opened, contained fluids removed; appendix removed, further collections of fluid looked for and removed with sponge on a handle. Cavity washed out with saline solution; drainage provided for by glass tube with a capillary gauze drain. Wound left open; no suturing. Nutrition by rectum for a day or two; deep packing not disturbed for four days. 24 cases, 14 recovered. *McBurney*, iii. C-71, 72.

Importance of withdrawing gauze plugs by rotary movement rather than by direct traction, giving less pain; reviving patient from shock of operation as early as possible by enema of hot coffee or whisky. *Abbe*, iii. C-72.

Recovery in case of profuse septic peritonitis. Protecting wall of inflammatory adhesion incomplete, septic process extending to liver and whole right abdominal cavity into the pelvis, which was filled with purulent fluid and fæces. Appendix gangrenous and left in. *Kakels*, iii. C-72.

Recovery in case of acute gangrenous appendicitis with general suppurative peritonitis. *Parker Syms*, iii. C-72.

In cases treated medicinally the comparatively few which recover do so gradually. Cases in which all symptoms disappeared, as if by magic, after operation. Argument for opening abdomen and washing out cavity. *Nolan*, iii. C-72, 73.

TECHNIQUE. Methods of dealing with stump at present employed far from perfect. After removing appendix continuous Lembert suture around appendix, like purse-string. Appendix divided, leaving stump never shorter than half-inch. Stump invaginated,—turned "outside in," as glove finger. Appendix-end one-half inch *inside* the cæcum. *Dawbarn*, iii. C-73.

In whatsoever manner treated, stump remains as excrescence, with chances of adhesions. To eliminate these, inversion into lumen of large intestine of either the entire appendix or any part remaining attached to the caput coli. *Edebohls*, iii. C-73, 74.

No part of stump should be ligated so as to cause possible strangulation. All coats in healthy tissue cut off on same level, stump transfixed with two crossed sutures near margin, which perfectly closes the end and causes approximation of all coats. Inversion then practiced. *Ruth*, iii. C-74, 75.

Sclerosed mucous and submucous coats comparatively loose within other outer coats close to the cæcum; after circular division of latter they can be drawn out an inch or so in an unbroken tube. Ligature round the tube formed of outer coats after cæcum and mucous membrane cut. *Barker*, iii. C-75, 76.

Gauze used not only for drainage, but quite as much to stimulate adhesions between coils of intestine which surround it and to shut off general peritoneal cavity from infected portion. *Halsted*, iii. C-76, 77.

Mikulicz drain, a bundle of lamp-wicks, an exceedingly potent means of producing drainage. *Wood*, iii. C-77.

Case in which iodoform dressing caused rapid pulse-rate. *Warbasse*, iii. C-77.

Very short incision in abdominal operations undesirable. After wound closed, a piece of *crêpe lisse* sufficiently large to cover the wound two or three folds thick applied and held in place by means of a double row of dress-makers' hooks fastened to the *crêpe*. *Durand*, iii. C-77.

When abdominal cavity opened exact position of appendix can be found by following white fibrous bands along convex surface of cæcum to the base of the appendix. Field of operation to be thoroughly protected by carefully packing with strands of iodoform gauze, ends outside. *Murphy*, iii. C-66, 67.

In cases requiring operation appendix should be removed, when no pus; when endo-appendicular abscess present; as a rule, when a peri-appendicular abscess requiring drainage through peritoneal cavity, and when general peritonitis without adhesions. Simple incision and drainage in cases with circumscribed abscess, when this can be done without opening healthy peritoneal cavity. *Porter*, iii. C-67.

All collections of pus should be evacuated by free incision followed by gauze drainage. If appendix necrosed, canal closed; hence excision not requisite. If appendix enlarged and indurated without perforation, ligation and removal. In suspected cases, exploratory operation by transverse incision above Poupart's ligament. *J. McFadden Gaston*, iii. C-67.

Question whether it is not better practice, in certain cases, to break down adhesions and institute definite search for appendix after abscess opened. It is generally supposed that one attack of suppurative appendicitis set up in the neighborhood is sufficient to render patient exempt from further attacks. *Stimson*, iii. C-67, 68.

Frequently after an attack the appendix is fully as capable of originating another attack as formerly. *Stimson, Bryant, Fowler*, iii. C-68.

Perforation the rule in recurrent cases; adhesion ruptures, often without giving any

APPENDICITIS, ETC. (continued).
sign,—patient dies of subacute peritonitis. Several instances in cases supposed to be cured. *Broca*, iii. C-68.

Case of ulcerative appendicitis terminating fatally upon operating-table. *Chandler*, iii. C-77.

Patients with abdominal sepsis bear anæsthetics badly. *Wiggin*, iii. C-77.

[Referring to the kind of abscess which has already approached the abdominal wall, and in which operation by incision and evacuation without opening the general peritoneal cavity could be performed, McBurney recently (*Annals of Surgery*, June, 1896) stated that all deep manipulations should be made from the inside of the abscess-cavity, the abscess having already reached the anterior abdominal wall. An incision is made in the latter, but the abscess is opened without opening the general peritoneal cavity. If, in handling the interior of the abscess, the wall of adhesions is broken through, it is quite easy for a coil of intestine which is not infected to enter the abscess-cavity through the opening made and to become at once infected, then rapidly disappear and reach a situation where it is entirely beyond control; or, if such an accidental break in the wall of the abscess having been made and a small quantity of the abscess-contents should escape among the uninfected intestines, fatal infection may result. He strongly objected to any manipulation, such as the removal of the appendix, when it forms an integral part of such abscess-wall, which would render the surgeon liable to produce infection of non-involved peritoneum. In reply to a question of O. H. Allis as to whether he thought injury has been done by too thorough palpation of an appendicular abscess, with a view to a diagnosis, and whether an examination of such a patient by a corps of surgeons may not be prejudicial to his best interests, McBurney replied that the amount of manipulation necessary to make a complete diagnosis should be of the very lightest possible kind. Anything more than very light manipulation in one of these cases must be accompanied by a certain amount of danger, because we do not know the thickness of the barrier between abscess-cavity and peritoneum.—Ed.]

ARSENIC POISONING.

In Maybrick trial medical experts stated that administration of arsenic in medicinal doses would diminish secretion of urine, and that it could be detected in the urine if boiled for a minute with a little pure hydrochloric acid and a slip of copper-foil. Medicinal doses of arsenic almost invariably increased secretion of urine provided no organic disease of kidneys. Rough test with copper-foil fails to detect arsenic in urine when given as a medicine. *Carter*, v. D-1, 2.

Results of 260 analyses of urine for arsenic, representing 180 cases. Of these, in 75 per cent. arsenic found, but not symptoms. Paris green in the garden and field a hitherto-unrecognized source of poisoning; soil impregnated with the poison. Another possible source is coal- and illuminating-gas. *W. B. Mills*, v. D-2.

Case of acute poisoning by arsenic with subsequent multiple neuritis. *Meirowitz*, v. D-2.

Toxic action of arsenetted hydrogen, illustrated by five cases of poisoning which occurred in a manufactory where, for trade purposes, zinc was dissolved in hydrochloric acid. *J. Dixon Mann and J. Gray Clegg*, v. D-2.

When the system has absorbed such an amount of arsenic that the quantity eliminated with the urine daily is relatively large (0.03 to 0.05 milligramme per litre), evidences of renal hyperæmia appear. *Hills*, i. E-77.

ARTERIES, DISEASES OF. (See also Aneurism.)

ATHEROMA. Small-cell infiltration always precedes degenerative changes; disease is probably microbic in origin. *Ainslie Hollis*, i. B-62.

Lancereaux has already attributed at least one form of atheroma of the aorta to infection from without. *Theodore Fisher*, i. B-62.

Stress laid upon the value of iodide of potassium in cases of aortic-valve disease, often intimately associated with atheroma. *Fraser*, i. B-63.

Importance of massage in these cases. Effect upon muscle is simply to imitate artificially the process by which waste products are naturally removed from it. Atheroma can be remedied permanently by water-drinking, passive and active graduated exercise. *Lauder Brunton*, i. B-63.

AORTITIS. At outset painful symptoms limited to temporary sensation of oppression and præcordial heaviness, only after some exertion. Later on, retrosternal pain, which comes on in sudden attacks. Sometimes there is no symptom and death occurs suddenly through rupture of the aortic walls. Diagnosis requires considerable investigation. Two symptoms—(1) increased dullness at level of second intercostal space, right of sternum; (2) elevation of right subclavian—are absolutely pathognomonic. *V. Martin-Durr*, i. B-65.

Hysterical paralysis in a subject attacked by chronic aortitis with dilatation of aortic arch. All cases so far published are in connection with mitral affections, but in none

has there been aortic affection. Aorta the seat of very powerful reflexes; symptoms of aortitis often imputable to reflex phenomena. *Potain*, i. B-66.

ARTERIO-SCLEROSIS. Arterio-sclerosis is one of the most common symptoms in severe general lipomatosis. *Kisch*, i. B-64.

In diagnosis the following points should be borne in mind: Possibility of a physiological sclerosis in old age; transitory stage of some forms of real sclerosis; pathological changes in vessel-walls, due to former diseases; increased blood-pressure under muscular work; height of blood-pressure; kind of work, and quality and quantity of food. *Tschigajew*, i. B-65.

Negroes seem to be particularly susceptible to arterio-sclerosis. *Frank Billings*, i. B-65.

[It is remarkable how much good iodide of potash will do the average negro. WHITTIER AND VICKERY, Assoc. Eds., i. B-65.]

ARTERITIS AND PERIARTERITIS. In experimental infection by the staphylococcus aureus, anthrax, or diphtheria bacilli, microscopically visible inflammation of the arteries is found. Seems to begin in vasa vasorum, but in serious cases often involves all the coats. *Pernice*, i. B-63.

Syphilitic nodose periarteritis divided into three distinct groups: 1. Outer coat infiltrated more or less uniformly with round cells, but without any evident tendency to degeneration. 2. Outer coat showing a nodular or diffuse cellular infiltration, with commencing caseation. 3. Outer coat showing distinct formation of caseous gummata and diffuse periarteritis. *Alex. Bruce*, i. B-63, 64.

Nodular periarteritis begins by a proliferation of the endothelium. Endothelial masses perforate elastic layer and mucous membrane, then frequently assume form of mucous tissue with long, ramified, stellate cells. Endothelial proliferation narrows lumen of the vessel. *Kahlden*, i. B-64.

ASCARIS LUMBRICOIDES.

See INTESTINES: INTESTINAL PARASITES.

ASCITES.

PATHOLOGY. A transudate can undergo metamorphosis from serous to cellular and come to contain fat, a chyliform ascites being, therefore, transformable into an adipose one. *A. R. Edwards*, i. D-65, 66.

Lumbo-abdominal wave obtained, by percussing region of quadratus lumborum near vertebral column, with other hand on abdomen, as diagnostic sign. *Bard*, i. D-66.

Modified heart-sounds during presence of liquid disappearing after tapping and returning with re-accumulation. *Beaudouin*, i. D-66.

When trocar or drainage by means of funnel resorted to, strict surgical principles to be followed, wound dressed and changed every twenty-four hours. *Schurz*, i. D-66, 67.

TREATMENT. Dry diet, 1 pint only of fluid being taken daily with laxatives, or ¾ to 1½ drachms of chloride of ammonium affords marked relief. *Finsen*, i. D-67.

Strychnine, commencing with $\frac{1}{30}$ grain every eight hours and increasing dose until physiological limit, of value. *McKie*, i. D-67.

ASTHENOPIA.

See EYE.

ASTHMA.

ETIOLOGY AND PATHOLOGY. Case of urticarial asthma due to mussel poisoning, which indicates relationship of urticarial eruption of the skin to that of the mucous membrane strongly advocated by Andrew Clark as the main cause of asthma. *G. Martyn*, i. A-86, 87.

Infra-glottic disorders, growths, and syphilis especially give rise to a form of dyspnœa simulating that of asthma. Iodide of potassium, frequently prescribed in latter, a dangerous remedy in cases in which infra-glottic condition overlooked. *Sajous*, i. A-87.

Great majority of urgent cases of acute stenosis seen occurred low down in the larynx, either in region of true or false vocal cords or below the glottis. *Macintyre*, i. A-87.

Anæsthetics dangerous in cases of infra-glottic thickening, symptoms of which greatly resemble chronic asthma in which death very nearly ensued through the use of ether. *Hill*, i. A-87.

Prodromata of asthma: (1) the dyspnœic laugh; (2) repeated sneezing; (3) stridulous laryngitis. *Moncorgé*, i. A-87, 88.

TREATMENT. Subcutaneous injection of a combination of strychnine sulphate, $\frac{1}{20}$ grain, with atropine sulphate, $\frac{1}{200}$ grain, repeated daily or as necessary. *Mays*, i. A-88.

Iodide of ethyl, 6 or 8 drops, inhaled from a piece of lint. *Thorowgood*, i. A-88.

Chloride of methyl sprayed rapidly over the back of patient. Attack ceases in a few moments; if not, light spraying of upper part of the chest. If skin delicate, parts covered with fine gauze. *Tsakiris*, i. A-88.

Citrate of caffeine, 2 grains, in cachet or dissolved in water, every four hours until bronchial spasm is relieved. If attack come regularly in the morning, 5 or 10 grains. *Skerritt*, i. A-88.

Asaprol in doses of 1 to 1½ drachms in powder or in aqueous solution. *Lewin*, v. A-35.

Asthma due, in part, to a deficient supply of oxygen to respiratory centres; training of respiration carried out by practicing respiratory movements needed to carry tidal air

ASTHMA (continued).
through the lungs recommended. *Marcet*, i. A-88.

Manipulation, pressure combined with a very limited degree of rotary motion. *Orrick Metcalfe*, i. A-88.

ASTIGMATISM. See EYE.

ATHETOSIS.

Case in which, at every attempt at motion, hand, fingers, legs, and feet slowly flexed. *Phelps*, ii. C-25.

Typical athetosic movements after sudden fright in a child. *Rauzier and Cazalis*, ii. C-25.

Double athetosis in a syphilitic woman. Father epileptic. *Brandeis*, ii. C-25.

Cases in mother and child. Symptoms exactly alike. *Oppenheim*, ii. C-25, 26.

Cases associated with epilepsy and mental trouble. Horsley's excision of diseased cortical centres rather heroic in double athetosis. *Drewry*, ii. C-26.

BARLOW'S DISEASE. See HÆMORRHAGIC OSTEOPATHY.

BASEDOW'S DISEASE. See EXOPHTHALMIC GOITRE.

BATHS.

MINERAL BATHS. Mineral waters, whether natural or artificial, contain an electrical quality demonstrable by the galvanometer. When human body immersed water electro-negative in relation to the person. *De Pietra Santa*, v. A-183.

Electric currents do not explain the favorable action of the bath, since they are not strong enough to overcome the resistance of the body and can act only upon the skin. *Elevy*, v. A-183.

Initial increase of blood-pressure soon followed by a compensating alteration of the tension of internal blood-vessels. Carbonated thermal brine-baths of service in arterio-sclerosis. *Grœdel*, v. A-183, 184.

Carlsbad especially suited to torpid and Vichy to excitable organisms. Carlsbad best for malarial hepatic engorgement of long-standing and abdominal plethora. Vichy best for biliary lithiasis with severe symptoms and hepatic colic. *M. R. Durand-Fardel*, v. A-184.

Study showing that mineral springs exist in the United States that duplicate those of Europe, located at all elevations and under all climatic conditions. *Peale*, v. A-185.

SALT-BATHS. Baths containing 1 to 13 per cent. of salt (1) eliminate uric acid; (2) increase oxidation of nitrogenous matters; (3) diminish amount of nitrogenous extractives; (4) restrict nitrogenous disassimilation. (See test.) *Keller*, v. A-177, 178.

Hot sea-baths 100° to 104° F., from 30 to 45 minutes, valuable in glandular swellings, congestion of the genito-urinary apparatus, gout, and rheumatism. Above also efficacious in obesity and diathetic cardiac affections. *Gérard*, v. A-177.

BEE-STINGS.

Case in which death followed bee-sting. Patient subject of an idiosyncrasy against this particular form of venom. *Marquie*, iii. M-24.

After a bee-sting general symptoms following and an urticarial rash over entire body. *Penniman*, iii. M-25.

TREATMENT. Camphorated chloral efficacious in quickly arresting pain caused by bee- and wasp- sting. *Vinze*, iii. M-25.

Local application of coal-oil, 2 fluidounces; oil turpentine, 2 fluidounces; ammonia-water, 1 fluidounce; tincture opium, 1 fluidounce. *J. H. Powell*, v. A-100.

BELLADONNA, UNTOWARD EFFECTS.

Case of poisoning from 10 drachms of belladonna-liniment. *Mould*, v. D-2.

Case of poisoning from application of emplastrum belladonnæ. *Clendinnen*, v. D-3.

BERIBERI.

Accumulation of carbonic oxide as cause. Whole crew affected in ship loaded with fermenting Manilla hemp; also in another vessel loaded with fermenting cocoa-nut fibre. *Ashmead*, ii. C-47, 48.

Infectious and contagious; most likely due to penetration into system of pathogenic, but as yet undiscovered, microbe. *Mossé and Destarac*, ii. C-48.

Typical cases. *Vintras, Van Tunzelmann*, ii. C-47.

An infectious miasmatic disease. Prime agent should be sought for in soil. *Scheube*, ii. C-48.

Cases in which microscopical and bacteriological examination showed blood to be free from any parasites. Disease probably due to toxæmia caused by ptomaines derived from special kinds of food. *Daland*, ii. C-48.

A toxæmia of alimentary origin (rice, fish); for cure, European rations indicated. *Grall, Porcé and Vincent*, ii. C-48.

Characteristics not as yet noticed: attacks of perspiration, ordinarily limited to head; two exceedingly sensitive points on the foot. *Corlette*, ii. C-48.

Three cases in colored men who had worked in phosphate-beds. Probably caused by microbe of telluric origin, distinct from that of malaria. *Dercum*, ii. C-49.

Anæmic aspect modified neither by iron nor arsenic. Filiform worm in the intestine, especially in duodenum. Large doses of thymol, followed, if necessary, by castor-oil. Tonics and good food. *Sheperd*, ii. C-49.

BILIOUS HÆMATURIC FEVERS.

Amount of hæmoglobin present oscillates between 50 and 21 per cent. of the normal standard. Diminution of hæmoglobin a certain index of latent or incipient malaria; this important sign manifests long before more salient symptoms become apparent.

TREATMENT. Transfusion of blood followed by conspicuous success and motion. Bilious fever never attacks men on the march; so long as body maintained in activity, products of disintegration completely eliminated; during inactivity blood becomes charged with detritus, which serves as nidus for the paludal poison. *Steudel*, i. G-55.

[If the author had employed 4 pipettefuls of blood in the demicylinder of distilled water in determining the percentage of hæmoglobin by the Fleischl hæmometer and had divided the result by 4, he would have obtained a correct reading, even though the amount of blood-pigment was reduced to 5 per cent. It is well known that the Fleischl hæmometer is inaccurate for blood containing less than 15 or 20 per cent. of hæmoglobin. J. DALAND, Assoc. Ed., i. G-55.]

BLACK-WATER FEVER.

Robust persons especially liable to be attacked; nearly always follows typical malaria. Diminution of red blood-corpuscles; plasmodia similar to those of malaria, but with a less affinity for aniline colors. Plasmodia of malaria and black-water fever varieties of the same species. Disease has tendency to spontaneous recovery. *Plehn*, i. G-55.

TREATMENT. Early purging and the subsequent administration of ℞ Spirits of mindererus, 2 fluidounces; spirits of nitrous ether, 1 fluidounce; tincture of hyoscyamus, 6 fluidrachms; camphor-water, ad 8 ounces. M. Sig.: Tablespoonful every three or four hours. Salol, 10 to 20 grains every two hours. Lime-juice and effervescent draught. Fruits, light diet, and nourishment in small quantities at regular intervals. Quinine during convalescence (Robert Reilly). [EDITOR.]

BLADDER. (See also CYSTITIS, ENURESIS, ANURIA.)

Germ causing inflammation usually bacterium coli commune; enters blood-current when natural evacuation of bowels does not occur; eliminated from blood through kidneys and urinary tract. *Posner and Lewin*, iii. E-1.

Case of glycosuria in which death followed speedily after passage of a sound employed to search for vesical calculus. *Bazy*, iii. E-1.

Introduction of instruments into bladder ought to be made under most rigorous aseptic rules. Hard metallic instruments should be avoided as far as possible, to lessen risk of lesions of vesical mucous membrane and microbic infection. *Grosglik*, iii. E-1, 2.

Death from ascending bacillary nephritis resulting from single passage of a catheter. *E. Fuller*, iii. E-2.

Fatal case of peritonitis in which source supposed to be periprostatic suppuration. *A. J. McCosh*, iii. E-2.

[In majority of cases gonococcus, extending into seminal vesicle, sets up acute seminal vesiculitis associated with extensive perivesiculitis; inflammatory focus becomes secondarily infected from rectum, or possibly from bladder, if that viscus a seat of infection. KEYES AND FULLER, Assoc. Eds., iii. E-3.]

Case of suppurative epididymitis during course of gonorrhœa in which gonococci found in pus escaping from incision into epididymis. *M. Routier*, iii. E-3.

ABSORPTION. Healthy vesical epithelium impervious, but absorption can take place when subject, having full bladder, experiences desire to urinate, urine then coming in contact with prostatic urethra. Absorption also takes place in conditions in which vesical epithelium is abnormal. *Pousson and Sigales*, iii. E-60.

ANÆSTHETICS. Antipyrin as local anæsthetic more complete than cocaine. Free from danger. 2-per-cent. solution, but can be increased to 4 per cent. Quantity injected: 1 to 3 fluidounces. Anæsthesia in ten minutes. *Pousson, Brik and Vigneron*, iii. E-60.

ANOMALIES OF BLADDER. Two cases in which vesical folds obstructed urethral outlet, causing partial retention of urine. *Trendelenburg*, iii. E-42.

TREATMENT. Case of exstrophy alleviated by Wood's procedure. *Masland*, iii. E-42.

Successful removal, by suprapubic cystotomy, of a stone weighing 13¾ ounces. *W. S. Armstrong*, iii. E-42.

BULLOUS ŒDEMA. Transparent vesicles or bullæ varying in size from a millet-seed to a pea strewn over mucous coat. Surrounding tissues quite normal in aspect. Painful micturition, heaviness, fragments of pseudomembranes in urine, tenesmus. Of periuterine inflammatory origin. Vesical injections increase complaint. Treatment of cause indicated. *G. Kolischer*, ii. F-113.

FREQUENT MICTURITION.

TREATMENT. Due to vesical hyperæsthesia. Progressive distension of bladder with solutions of boric acid, directing patient to retain the fluid as long as possible. *Janet*, iii. E-60.

RUPTURE OF THE BLADDER.

TREATMENT. Case in which diagnosis established by inflating bladder with a few cubic inches of air from a rubber ball. Ab-

BLADDER (continued).
domen became tympanitic and liver-dullness effaced. Rent closed by silk Lembert sutures; pelvic cavity irrigated with perchloride of mercury and boric lotion; abdominal wound sewn up after bladder proved competent by injection of milk. Uninterrupted recovery. Peritonitis usually due to leakage or giving way of suture; hence major importance of testing competency of bladder. *W. J. Walsham*, iii. E-43.

Case of very extensive intra-peritoneal rupture successfully treated by tightly suturing the rent and tying in a catheter introduced through urethra. *James Murphy*, iii. E-44.

Case of rupture of mucous and muscular layers, peritoneal covering remaining intact. Extravasation sacculus formed outside of vesical cavity. Sacculus laid open, drained, and obliterated. *J. A. Reid*, iii. E-44.

Case of intra-peritoneal rupture cured by operation. *Kofmann*, iii. E-44.

Case of stab-wound in buttocks, penetrating bladder; suprapubic drainage; recovery. *Soulié*, iii. E-44.

TUBERCULOSIS.

TREATMENT. Hygienic measures accomplish more than surgical ones. Temperate climate; occupation. Surgical traumatism produced by efforts to relieve local symptoms seem to produce more harm than good. Object to surround tubercular deposits with layer of healthy connective tissue. *L. B. Bangs*, iii. E-35, 36.

In rebellious forms vesical curettage and perineal drainage. Perineal operation preferable to suprapubic. *F. Guyon*, iii. E-36.

Four cases treated by suprapubic cystotomy and drainage for considerable period. Result most satisfactory in all. Rest given to bladder practically the sole curative agent. Scraping of ulcers and iodoform unsatisfactory. *W. W. Cheyne*, iii. E-36, 37.

Case in which great relief from suffering and much general improvement obtained from suprapubic cystotomy and cauterization. *C. M. Moullin*, iii. E-37.

Case of successful removal of a tuberculous bladder and one kidney from a young girl; ureter of remaining kidney grafted into bowel. *Trendelenburg*, iii. E-37.

[Hygienic treatment, as a rule, affords the best results only when cases fail to yield to these measures, and in which tenesmus so severe that operative interference seems warrantable. As to operation, Guyon's advocacy of perineal route should have great weight, although in great number of cases suprapubic operation very successful. KEYES AND FULLER, Assoc. Eds., iii. E-37.]

Generally speaking, surgical interference not attended by brilliant results; suprapubic cystotomy may be of great value in relieving vesical tenesmus. *F. S. Watson*, iii. E-37.

TUMORS. 86 per cent. of growths start from portion of bladder next ureters; most exposed to action of irritants when such substances are excreted in urine. Out of 45 workmen in analine-dye factory 3 developed tumors about ureters,—2 fibromata and 1 carcinoma. A fourth developed hæmaturia. *Rehn*, iii. E-40.

MYOMA. Investigation of sixteen cases: complete analogy with uterine fibromyomata. *Terrier and Hartmann*, i. E-39.

NÆVUS. Extensive nævoid growth of mucous membrane of bladder in female child, aged $3\frac{1}{2}$ years, which, two years previously, had commenced to pass bloody urine. Strychnine used as styptic, condition rapidly improving. *Arbuthnot Lane*, i. E-38, 39.

Myomata of bladder rare,—only sixteen cases on record. Analogous in structure to uterine fibroids. When a myoma projects inwardly it interferes with urination and may cause hæmaturia. *Terrier and Hartmann*, iii. E-40, 41.

TREATMENT. Sixty-six cases operated by suprapubic route; mortality, $17\frac{1}{2}$ per cent. For many benign tumors intra-vesical method, aided by cystoscope, preferred. Of 10 cases, 1 died from pulmonary hæmorrhage; other 9 did well. Hæmorrhage in only 1 of latter. *Nitze*, iii. E-40.

Resection of bladder for tumors offers no more danger than older method of simple extirpation. *Goldberg*, iii. E-41.

To perform vesical resection including peritoneum, suprapubic cystotomy first, seizing pedicle with surrounding vesical walls, causing invagination of outside peritoneal surfaces. Abdominal section then made and vesical peritoneal surfaces brought securely into apposition by sutures. Tumor and pedicle removed between clamp and line of sutures. *Clado*, iii. E-41.

Chismore's method—2 ounces of 2-per-cent. cocaine solution for local anæsthesia, crushing and washing out fragments; employing several short sittings, rather than one prolonged operation—of value. *L. B. Bangs*, iii. E-41.

Hard-rubber suprapubic drainage-tube, intended to be worn in cases which require permanent drainage. *N. Senn*, iii. E-41, 42.

As stationary catheter, soft instrument of Pezzer with bulbous end, introduced along urethra over a probe, a valuable instrument. *Guyon and Michon*, iii. E-41.

WOUNDS OF BLADDER DURING OPERATIONS. Cases of hernia containing knuckle of vesical wall. *F. Treves, Maunz, Walther*, iii. E-43.

TREATMENT. When in class of hernia partially made up of bladder-wall, wounding of latter during operation recognized; cut securely sutured with catgut or fine silk. *B. F. Curtis*, iii. E-42, 43.

INSTRUMENTS. Practical contrivance

for sterilization of soft urethral instruments by action of sulphurous acid. *De Martigny*, iii. E-61.

Moist heat the only agent which can render catheters thoroughly sterile. *Grosglik*, iii. E-61.

Surgical crutch with adjustable leg-rests, designed to remedy defects of Clover crutch. *Tilden Brown*, iii. E-61, 62.

CATHETERIZATION OF THE FEMALE URINARY TRACT. Renal catheter for emptying fluid accumulations in renal pelvis, diagnosing and passing strictures of upper ureter, and in differentiating soft, malignant tumors from sacculated accumulations which could be evacuated. *Kelly*, ii. F-116.

With Brenner's modification of Leiter's cystoscope little or no difficulty in catheterizing ureters in male or female. *Brown*, ii. F-117.

BLEPHARITIS. See Eye.

BLOOD, DISEASES OF. (See also Anæmia, Pernicious Anæmia, Chlorosis, Hæmophilia, Leucocythæmia, Acute Leukæmia, Chronic Leukæmia, Scurvy, Barlow's Disease, and Purpura Hæmorrhagica.)

ALKALINITY. Great number of experiments showing that infectious fevers are not always, if ever, accompanied by diminished alkalinity of the blood or serum. *R. von Limbeck and L. Steindler*, i. K-30.

In animals the administration of alkalies causes the power of resistance against infection with cultures of anthrax bacilli to be greatly increased. Rabbits, after infection with bacilli of anthrax, cholera, typhoid fever, tuberculosis, and erysipelas, showed that in living organisms, after infection with certain bacilli, there is first an increase of alkalinity and then a diminution of the blood, more or less. If infection is fatal, diminution of alkalinity is marked and progressive; if not fatal, diminution is slight and followed by increase of the same. *Josef von Fodor*, i. K-30.

Upon saturation of the blood with carbonic acid the alkalinity, as stated by Zuntz, is more than doubled. Serum becomes more concentrated upon corpuscles in consequence of giving off water. Carbonate of soda produced from common salt, through which free hydrochloric acid reaches blood-corpuscles. *A. Gürber*, i. K-31.

Method of estimating alkalinity of blood as formerly practiced gave too low a figure. *Loewy and Zuntz*, i. K-31.

Clinical method for determining the alkalinity of the blood. (See text.) Alkalinity of blood in healthy persons averages 0.5 to 0.7 NaOH in 100 grammes. Rather higher than results obtained by previous methods. *F. Tausk*, i. K-31.

New clinical method for estimating alkalinity of blood. (See text.) *Carl Schultz-Schultzenstein*, i. K-32.

Bleibtreu's method for determining volume of physical elements in the blood gives too low figures. *C. Eykman*, i. K-32.

Centrifugal method to determine number of corpuscles. Apparatus for determining volume of corpuscles for practical usage. Objections of Bleibtreu's repudiated. Upon mixing blood with from two to three volumes of 0.6-per-cent. solution of ordinary salt, almost all albuminous bodies disappear from the sero-saline mixture. *S. G. Hedin*, i. K-32.

Justice of Eykman's objections recognized, experiments confirming statements; disagreement with Hedin that mixture of blood and common salt solution causes nitrogenous substances to migrate into blood-corpuscles. Personal method practicable with 0.9-per-cent. saline solution. *Bleibtreu*, i. K-33.

THE BLOOD IN GENERAL DISEASES. In children specific gravity of the blood raised in certain febrile diseases. Increases during the inflammatory stage of pneumonia and diminishes after the crisis; during acute stage of intermittent fever it also increases, to fall slowly when fever has ceased, etc. It becomes lower in anæmia, nephritis, and chorea. In diseases of long duration—as tuberculosis—great organic combustion present; specific gravity increases. *Monti*, i. K-29.

The soluble products of pathogenic micro-organisms (typhoid fever, anthrax, pyocyaneus, streptococcus pyogenes, cholera) have the peculiarity of regularly, though often only to a slight degree, increasing the isotonic contents of the blood. *Bianchi-Mariotti*, i. K-29.

In healthy blood glycogen reaction is usually slight. Glycogen is extra-cellular. Deviations due to absorption of food not noticed. Augmented glycogen most pronounced in croupous pneumonia and tuberculosis of lungs. (See text.) *Livierato*, i. K-30.

EXAMINATION.

TECHNIQUE. Examinations with reference to either the volume or weight of the corpuscles of the blood as a whole cannot be entirely exact at the present time. *W. Y. Cowl*, i. K-34.

Hedin's hæmatokrit satisfactory; modification for measuring the height of the columns of corpuscles by direct reading with low powers (x 200 or less). *F. W. Arnold*, i. K-35.

Simple method of staining blood-preparations. Air-dried preparation passed rapidly through flame of spirit-lamp, immersed in ether-alcohol and again dried. Immersed in a 2-per-cent. solution of eosin, washed off

BLOOD, DISEASES OF (continued).

quickly in water, air-dried, immersed half a minute in a saturated solution of methylene-blue, washed off in water, dried, and placed in Canada balsam. Red corpuscles somewhat altered by flame, but they absorb eosin readily as before, eosinophile cells especially taking on a beautiful color. Best to examine preparation immediately. Eosin-stain disappears very soon. *Arnold Josephson*, i. K-37.

Improvement which facilitates the use of the Fleischl hæmoglobinometer. *B. C. Loveland*, i. K-38.

Method by means of which watery and dry constituents of blood may easily be measured with sufficient exactness for clinical purposes. Leukæmic blood is characterized by a relatively large amount of dry substance and a diminution of hæmoglobin and forms the most marked exception to the rule that all anæmia is an hydræmia, there being a diminution of hæmoglobin, an increase of other albuminoids, but not of water. *Stintzing and Gumprecht*, i. K-38.

[The existence of such a rule is questionable. In typhoid fever, I have shown, the blood is inspissated, while there is a decided reduction in the number of the red corpuscles. In stenosis of the œsophagus and in choleraic conditions also there is oligocythæmia associated with great increase in the density of the blood. FREDERICK P. HENRY, Assoc. Ed., i. K-39.]

Amount of albumin and hæmoglobin in the blood diminishes or increases in such a manner that the quantity of one may be deduced from that of the other. In diseases of the heart amount of water not increased, but is a little below the normal. It is only in anæmia and chlorosis that albumin is lessened. Thus possible to estimate, by measuring the hæmoglobin, what diminution has taken place in the albuminoid substances of the blood in various diseases. *Maxon*, i. K-39.

Important to obtain plasma in a pure state by separation of the corpuscles, either for analysis of the blood or for the preparation of serum for vaccination. Apparatus worked by a mechanical motor, permitting a rotation of twelve hundred turns per minute and even more. A pure and limpid plasma may be obtained, half the volume of the blood. *Mayet*, i. K-40.

BOIL. See FURUNCULOSIS.

BONE, DISEASES OF. (See also OSTEOMYELITIS; OSTEOMALACIA.)

OSTEITIS. Polymorphous microbe of a lemon color, waxy in consistence, and liquefying but slowly in gelatin; found in a periosteal serous effusion. Bacillus cereus citreus injected into rabbits produced albuminous periostitis once and infectious, non-suppurating osteitis once. *L. Dor*, iii. H-16.

Case of primary osteitis of sarcomatous origin with chronic relapsing fever. *Hammer*, iii. H-16, 17.

OSTEITIS DEFORMANS. Autopsies in two cases showing lesions of the posterior cords. Found by microscopical examination to depend upon proliferation of connective tissue of lamellar sheaths and infra-fascicular tissue (periendoneuritis). *Gilles de la Tourette and Marinesco*, iii. H-15, 16.

Case in a young man of 17 years. Cases only recorded so far in adults and old people. *Blane*, iii. H-16.

TUBERCULOSIS OF THE BONES. Study of 305 cases in the bones of the foot. Lesions are usually central, though in a few cases observed to be both central and peripheral. Sequestrum in 54 cases. Infiltration more common than cascous fungous lesions. Fourth and fifth metatarsals more exposed to traumatism, and thus tuberculous lesions more frequently observed; but they have no tendency to spread, owing to circumscribed synovial membrane. *Mondan*, iii. H-19.

Of 150 cases of joint tuberculosis, but 8 cases of tuberculosis of bone-marrow in children. *Félizet*, iii. H-20.

Inoculation through a prick in the right hand. Series of severe local symptoms, then tuberculous areas in left humerus. Lungs affected toward the end. *Lejars*, iii. H-20.

Click of polished bone-surfaces,—a sound resembling the noise made by sliding a stick along the palings of a fence. When the femur moved with the hand, similar crepitation heard. Suggestive of presence of large, eburnated, opposing bone-surfaces. *Fenger*, iii. H-21.

[Most surgeons, of course, have at times noticed the "click" referred to, but perhaps failed to give it its full importance. CONNER AND FREEMAN, Assoc. Eds., iii. H-21.]

Case in which, after a consultation, osteosarcoma of the hip-joint diagnosed; found to be a deep-seated abscess in the pelvis. *A. J. Gillette*, iii. H-22.

Importance of bursal enlargements in the neighborhood of the hip-joint in children, which show no evidence of affection of the joint, but of great diagnostic value,—the first indications of tuberculous mischief. *D'Arcy Power*, iii. H-22.

TREATMENT. Cases of fungous arthritis of the knee in which the tuberculous process invaded the entire medullary canal of the femur. Recovery following disarticulation of the hip in two instances. *Le Dentu*, iii. H-22.

Resection was sufficient, if followed by curetting of the medullary canal. *Quénu*, iii. H-23.

[It has been clinically established that extensive resections which go wide of the dis-

eased area give the best results. It is better to remove too much bone than too little. There is wisdom perhaps in considering the tarsus as made up of one bone instead of many. CONNER AND FREEMAN, Assoc. Eds., iii. H-19.]

May originate in primary disease of one of the cuneiform, cuboid, or scaphoid bones, and more rare of the metatarsal. Definite cure in such cases by total anterior tarsectomy. *Ollier, Mondan*, iii. H-19, 20.

Resections and cleaning out the medullary canal,—a simple procedure. Necessity of so radical an operation as disarticulation questioned. *Championnière*, iii. H-23.

[Sufficient evidence has not been produced to show that amputation of the entire extremity is indicated in tuberculosis of the femoral marrow, especially as the diagnosis is often difficult and uncertain. CONNER AND FREEMAN, Assoc. Eds., iii. H-23.]

Fifty-three sections of the knee without any death from the operation, 13 of the patients dying ultimately from tuberculosis. *Herbing*, iii. H-23.

Resection justifiable only in exceptional cases. For injection of iodoform in hip-joint, limb should be extended, slightly adducted, and rotated inwardly. Long trocar, inserted just above trochanter and pushed until it comes in contact with the head of the bone. Best points of the wrist, just the styloid process of radius and ulna; for the elbow, the head of the radius; for the shoulder, externally to the coracoid process, just outside the spot where the spine of the scapula becomes continuous with the acromion. *T. F. Prewitt*, iii. H-24.

Only severest cases of articular osteo-tuberculosis which do not respond to the iodoform-emulsion injection. Of no use in cases in which extensive primary osteo-tuberculosis has led to the formation of large tuberculous sequestra. *Fenger*, iii. H-20, 21.

[Much more time is often required to obtain beneficial results than is usually recognized, it being occasionally necessary to continue the injections for many months. CONNER AND FREEMAN, Assoc. Eds., iii. H-21.]

Results after adopting the plan of opening every chronic tubercular abscess had not been so good as since plan of non-operative interference adopted,—*i.e.*, waiting until general or local symptoms due to abscess itself, before resorting to incision. Many abscesses disappear; few, if any, give rise io trouble; those which open spontaneously uniformly do well. *Newton M. Shaffer*, iii. H-24.

Contents of abscesses sterile. Why run risk of infecting it? *John Dane*, iii. H-24.

[Before the days of cleanly surgery latter procedure was preferable. At present a medium course seems best. It appears to be advisable not to open these abscesses unless there is some good reason for doing so,—pain, pressure symptoms, etc. A mixed infection with more or less acute symptoms would certainly be an indication for immediate incision. CONNER AND FREEMAN, Assoc. Eds., iii. H-25.]

When abscess is small or where it is large and does not interfere with application of protection apparatus, case may simply be watched. *V. P. Gibney*, iii. H-25.

Cases of so-called "cold abscess" presenting no symptoms should be left alone. Those which present an acute or subacute character, there can be no question about the advisability of opening them. *Samuel Ketch*, iii. H-26.

Those abscesses which do not disappear may be instances of mixed affection; cultures from such cases show pyogenic germs. Leucocyte-count a good guide as to what is going on in the abscess. *J. Dane*, iii. H-26.

Modern pathology holds that a tuberculous abscess does not contain true pus. When tuberculous cavities are left to themselves the surrounding tissue is destroyed. It is time to operate when the capsule of the joint is ruptured or where there is a rapid myelitis, where abscesses may burrow into important structures; always when there is necrotic bone present. *Wyeth*, iii. H-26, 27.

Distinct line should be drawn between acute burrowing of a pyogenic abscess and the chronic burrowing of a tubercular abscess. *Shaffer*, iii. H-27.

Conservative treatment should be looked upon as the complement of operative treatment. *Rydygier*, iii. H-27.

For iodoform injections used in Basel clinic, glycerin replaced by olive-oil solution, which can be more certainly sterilized. Value of rest of diseased limb during the whole time of treatment emphasized. *Wieland*, iii. H-27, 28.

[Others have obtained good results by permitting a certain amount of motion, even claiming that motion hastens the curative process. If movement does not materially interfere with recovery, it would certainly be of advantage in some cases when it is desirable to avoid complete ankylosis. CONNER AND FREEMAN, Assoc. Eds., iii. H-28.]

Injections of carbolic acid gave better results than iodoform injections. In over 20 per cent. of conservative cases movable joints obtained. In 24 per cent., mainly children, arthrectomy performed: 79 per cent. of cures. In 91 cases amputation; this operation proper if there be no hope of retaining a movable joint. *König*, iii. H-28.

[Such a statement is rather too sweeping. While it is true that amputation might be performed more frequently with benefit to the patient, ankylosed joints are often far

BONE, DISEASES OF (continued).

preferable to artificial limbs. CONNER AND FREEMAN, Assoc. Eds., iii. H-28.]

Iodoform injections; fixation by plaster of Paris; traction to overcome muscular spasm. Excision as last resort. *S. H. Weeks*, iii. H-28.

Conclusion from 1398 cases: 1. More cases are cured by strict conservative treatment of joints than by operations. 2. Mortality is less. 3. Functional results are better. *J. Rabl*, iii. H-28.

20-per-cent. oily solution of guaiacol into diseased area itself, as well as in the vicinity; maximum quantity, 2½ drachms. *Bonome*, iii. H-28, 29.

Firm and prolonged constriction of the limb one of the most effectual means, and is preferable to other conservative methods; it has its drawbacks and failures. *Bier*, iii. H-29.

[Although the results of Bier's treatment have been, on the whole, encouraging, other experimenters have not been so successful. It has not been so universally adopted as has the injection of emulsions of iodoform. CONNER AND FREEMAN, Assoc. Eds., iii. H-29.]

TUMORS.

CANCER OF THE BONES. Autopsy at which were found tumor of seventh right rib with consolidation of the right lung and tumor of the left ilium, all cancerous in character. *Steven and Miller*, iii. H-18.

LEONTIASIS OSSIUM. Four cases. A pathological entity in which both osteoplastic and osteoclastic processes are represented. Extirpation, if extensively practiced, may offer considerable relief. *Horsley*, iii. H-18, 19.

SARCOMA. Case of concurrent sarcoma and hip-joint disease. *Rugh*, iii. H-17.

Case of tumor of the knee resembling tuberculous arthritis, really one of sarcoma of the condyles of the femur. *Schwartz*, iii. H-17.

Three cases of pulsating sarcomata of the humerus, 3 of the upper end of the tibia, and 4 of innominate bone in men. *Albert*, iii. H-17.

Case of spontaneous fracture from osteosarcoma. *Duplay*, iii. H-17.

Giant-celled, primary, endosteal sarcoma involving the whole substance of the patella, articular cartilage intact. *D'Arcy Power*, iii. H-17.

Resection in a case of round-celled sarcoma of humerus; recovery; up to time of report, —11 years. *Heurtaux*, iii. H-17, 18.

Removal of patella for primary sarcoma. Two recurrences at three years' interval each. Death. *Parker*, iii. H-18.

BRADYCARDIA. See HEART, DISEASES OF.

BRAIN, DISEASES OF. See also APHASIA, CEREBRAL ABSCESS, CEREBRAL HÆMORRHAGE, CEREBRAL SCLEROSIS (DISSEMINATED), CEREBRAL SYPHILIS, ENCEPHALITIS, EPILEPSY, HYDROCEPHALUS, LEAD ENCEPHALOPATHIES, MENINGITIS, AND PARALYSES.

CEREBELLUM. Additional papers upon functions of cerebellum. *Risien Russell*, ii. A-11.

Study of degeneration of descending tracts of fibres. *Biedl*, ii. A-11, 12.

Cause of atrophy of opposite half of the cerebellum with unilateral cerebral lesions to be sought in the accompanying affection of the tract whose course is the thalamus and red nucleus of the same side and the peduncle of the opposite side. Atrophy of a certain part of the thalamus causes crossed atrophy of the cerebellum, but lesions of one side of the brain without lesion of thalamus do not cause crossed atrophy. There is a tract divisible into three parts: (1) from cortex to thalamus; (2) from thalamus to red nucleus; (3) from red nucleus *via* decussation to opposite half of cerebellum. *Mingazzini*, ii. A-12.

NAMING CENTRE. Case tending to show existence and localization of naming or idea centre, and confirming Broadbent's speculation as to the position of this centre in the temporal lobe near its junction with the occipital lobe. *C. K. Mills and J. W. McConnell*, ii. A-12 to 14.

CEREBRUM.

LOCALIZATION. In the light of researches founded upon methods of Golgi, impulses are transmitted and transferred by processes as well as by cell-bodies, and the function of the latter is chiefly trophic. New researches and theories do not compel an abandonment of former views as to special localizations. The subdivision of cerebrum into physiological lobes remains for practical purposes the best. *Charles K. Mills*, ii. A-1, 2.

Motor and sensory functions practically united. Weight of clinical evidence indicates that these two functions are essentially identical anatomically. *Dana*, ii. A-2.

Convolutions in advance of the fissure of Rolando ordinarily associated with localized movements have also to do with sensation. *Putnam*, ii. A-2.

A lesion of a limited area of the so-called motor zone inevitably produces in almost every case more or less disturbance of sensation. *Allen Starr*, ii. A-2.

The various centres of the cortex are simply highways of ingress and egress to the general cortex. General biological considerations also negative; sharp differentiation of cells into special functions. *Dercum*, ii. A-2.

Our knowledge of the neuron tends to

show the very pronounced dependence of the motor neuron upon the sensory neuron. In the primary neurons it had been clearly proved that the terminal processes of the axis-cylinder of the sensory neuron were closely connected with the apical processes of the motor neuron in the cord. *Knapp*, ii. A-3.

MOTOR CENTRES. Only motor centres positively known in man those of upper and lower extremities, face, and tongue. Other motor centres not sufficiently supported by evidence to warrant a definite conclusion. *Charcot and Pitres*, ii. A-3.

VISUAL CENTRE. History of case of much interest in its bearings upon visual area. *Mey*, ii. A-3.

Tendency of recent opinion favoring region of calcarine fissure of occipital lobe as primary cortical visual centre, the angular gyrus having nothing to do with vision proper. *Starr*, ii. A-4.

COMMON SENSATION. Sensory phenomena not superimposed upon motor, but are transient, the anæsthesiæ sometimes accompanying motor paralyses of cortical origin being mostly functional, analogous, if not identical, with hysterical anæsthesiæ. *Charcot and Pitres*, ii. A-4.

Angioma of the pia removed from a point on the left side, between 1 and 2 inches posterior to Rolandic fissure, posterior to posterior central convolution, and about at junction of superior and inferior parietal convolutions. After operation ataxia of hand and arm gradually disappeared and muscular sense alone affected. *M. A. Starr*, *A. J. McCosh*, ii. A-4, 5.

Ablation of motor zone of the brain of a dog produces not only a diminution of tactile sensibility, but also of reflex sensibility. *Contejean*, ii. A-5.

ALLOCHIRIA. Examples of false reference of pain. Injury of right foot, acute pain in the left leg (of the uninjured side). *S. Weir Mitchell*, ii. A-5.

New instrument to measure the sensibility of the skin to pain. *Motschutkowsky*, ii. A-6.

CEREBRAL ANATOMY, HISTOLOGY, AND EXPERIMENTAL PATHOLOGY. Conclusion somewhat hastily drawn that Meynert's theory of a connection between the posterior columns and the cerebral hemispheres was to be abandoned. In reality, the tract may be established by changing the nomenclature of the sensory decussation, —*i.e.*, substituting "stratum intermedium" for "outer part of the pyramidal and peduncular tracts." Case of uncomplicated lesion of this tract,—the first recorded. *E. C. Spitzka*, ii. A-6, 7.

Inflammation consecutive to cortical lesion delays latent period of excitation, while destruction of centres of opposite side diminishes hyperexcitation of the side first injured. *Bechterew*, ii. A-7, 8.

Results from destruction of tubercle of Rolando in the medulla of the monkey: (1) defects of sensibility over the distribution of the fifth cranial nerve on the side of the lesion and (2) alteration in the sensibility of the body and limbs on both sides. *W. A. Turner*, ii. A-8.

Pyramidal tracts of dogs have only subordinate importance for locomotion. In dogs there must still exist a motor pathway for transmission of impulses from cerebral cortex to muscles, which tract does not have its course within the pyramids. *T. Starlinger*, ii. A-9.

Limited atrophies of motor zone consecutive to old amputations of extremities. Cerebral atrophy not the result of ascending degeneration. Amputation of limb always followed by a unilateral atrophy of cord-segment corresponding to limb amputated. *Charcot and Pitres*, ii. A-9.

Distribution of degenerate association-fibres in thumb-lesions correspond with the measurements made by Bevan Lewis of the corpuscles of the fourth layer of the cortex; that is, that coarse fibres are distributed to upper part of the motor area and fine fibres to the lower part. In the monkey, facial fibres are situated in the middle third of the crus, in which they are mingled with the fibres of the pyramid; they do not occupy a space by themselves mesial to the pyramid. *Horsley and Mellus*, ii. A-10, 11.

CEREBELLAR TUMORS. Tuberculous gumma causing, besides usual symptoms, complete paraplegia in standing, all movements of the legs being normal when lying down. This dissociation of motor function an excellent diagnostic sign. *Mongour and Rivière*, ii. A-48.

Case which, in addition to senile dementia, had also loss of equilibrium, with staggering gait and tendency to fall backward. Cancer of cerebellum verified at autopsy. *Skvortzoff*, ii. A-48.

Case of mixed sarcoma of middle lobe of cerebellum, by its pressure producing eye-symptoms. *Eskridge*, ii. A-48, 49.

Round-cell neurosarcoma of cerebellum following injury. *Louis Mackall*, ii. A-49.

Carcinomatous tumor of right breast followed by carcinomatous growth of cerebellum and cerebrum. *Garceau*, ii. A-49.

Gliosarcoma of cerebellum. Most important diagnostic symptoms for localization of a process in the vermis inferior of the cerebellum: (*a*) lateral curvature of vertebral column; (*b*) progressive weakness of the extremities; (*c*) general hypotrophia; (*d*) unconscious yelling or screaming. *P. de Michele*, ii. A-49.

Case in which there was absence of localizing symptoms, diagnosis being based on

BRAIN, DISEASES OF (continued).

general symptoms. *E. D. Fisher*, iii. A-35, 36.

MENINGOCELE. The belief that excision of a meningocele connected with the skull or spine is unjustifiable may, with certain reservations, be disregarded. Only difficulty is possible presence of portion of nerve-centres in the sac, easily diagnosed by palpation with or without aspiration. Exploratory operation always possible. Cases in point. *Mayo Robson*, iii. A-33, 34.

Case of meningocele due to fracture of the skull. *Lilienthal*, iii. A-34.

TUMORS OF DURA MATER. Case of paralysis of the muscles supplied by the third, fourth, and sixth nerves of the left side, and exophthalmos and optic atrophy in the same eye as primary symptoms. Gumma of dura mater in anterior part of middle fossa involving left temporo-sphenoidal lobe. *Dufour*, ii. A-47.

Weakness in shoulder, gradual paresis, Jacksonian epilepsy; hypersensitive area in front of left parietal eminence. Growth of dura mater leaving subjacent brain-surface apparently healthy. *Bremer and Carson*, ii. A-47.

Case of fungous tumor presenting characteristics of tubular epithelioma secondary to an old cancer of the breast. *Floersheim and Blind*, ii. A-48.

Hæmatoma of the dura mater of syphilitic origin. *H. Hahn*, ii. A-48.

TUMORS OF PIA MATER. Three cerebral tumors consisting of concentric layers like an onion. Tumors of the same nature in spinal cord, kidneys, and surface of pleura. Histologically, presented structure of fibrocaseous tubercles, but absence of Koch bacilli. *Du Cazal*, ii. A-48.

Endothelioma of the pia mater located directly in the median line about half-way between fissure of Rolando and anterior edge of brain. No cerebral symptoms; typical carcinoma of breast also present. *Stearns*, ii. A-48.

TREATMENT. In operating main points to remember: Space between superior and inferior curved lines exceedingly variable; several sizes of trephine should be on hand. Primary opening ¼ inch from median line, same distance from curved line. Occipital usually gets thinner from above downward. *Munn*, iii. A-36, 37.

On the ground of persistent occipital pain, peculiarities of gait, vomiting, optic neuritis, vertigo, and forced movement, diagnosis of tumor of the cerebellum made. Under iodide of potassium patient greatly improved for awhile. Autopsy revealed tumor of right lobe of cerebellum. Case thought to be one in which tumor could have been successfully removed. *Dana*, ii. A-49, 50.

Starr's figures as to successful results,—18 operations with 1 recovery. *Bryant*, ii. A-50.

Case diagnosed from absence of distinct motor paralysis combined with presence of staggering gait and distressing vertigo, on account of marked headache over left eye and deafness in right ear, tumor thought to be in lower part of lateral cerebellar lobe, low, because spinal accessory seemed implicated. Patient trephined and fibrosarcoma found where located. Subsequent history of patient satisfactory. *Purves Stewart*, ii. A-50.

CEREBRAL PHLEBITIS. Presence of pneumococcus in blood-clot of encephalic veins warrants conclusion that it played pathogenic rôle in phlebitis. *H. Claude*, ii. A-32.

Case of probable septic phlebitis of left sigmoid sinus. *Eskridge and Rogers*, ii. A-32, 33.

Pathological specimens from a fatal case of sinus-phlebitis secondary to otitis. *Böke*, ii. A-33.

CEREBRAL SCLEROSIS. Infectious diseases—malaria and influenza included—etiological factors; also intoxication by lead, phosphorus, etc. Exposure to cold a cause. Disease often begins in childhood, though developed disease rare under adult age. *Oppenheim*, ii. A-74.

Examination in a case tending to indicate that the disease consists essentially in a parenchymatous degeneration of the nervous tissue. In recently affected spots, especially, wide-spread disappearance of nerve-fibres. *O. Huber*, ii. A-74.

Case of sclerosis in a child of 10 years. *Drouet*, ii. A-74.

Two cases, due to influenza, in which sclerous encephalitis was consecutive to an infectious circumscribed arteritis. *H. Rendu*, ii. A-74.

CEREBRAL THROMBOSIS. Thirty-one cases, two of which hitherto unpublished. Syphilis most frequent cause; leads to apoplectiform attacks, paralysis of extremities and cranial nerves, combined in various ways. *C. Hiesco*, ii. A-32.

Case in which basilar and other arteries showed lesions clearly. Quiescent old tubercular infiltration of one apex present. History of syphilis could not be obtained. *Peabody*, ii. A-32.

In emboli due to thrombi distribution of left common carotid most frequently their seat from direct anatomical relation to the current in the aorta. *John F. Hilton*, ii. A-32.

Symptomatology and treatment of infective thrombosis of cerebral sinuses. Report of case, with autopsy. *Heaton*, ii. A-33.

CEREBRAL TRAUMATISMS. A case of fractured base of skull with laceration of brain, accompanied by sugar and acetone in the urine. *J. G. Pardoe*, ii. A-34.

Fatal case of cerebral traumatism with anatomical lesions of acute hæmorrhagic inferior polioencephalitis. *Sinkler*, ii. A-34.

Case in which, after recovery from cranial injuries, it was found that a portion of time before the accident was absolutely forgotten. *Joseph Bell*, ii. A-34.

Diagnostic value of fluid discharges from ear in head-injuries. *Alexander Miles*, ii. A-34.

CEREBRAL TUMORS.

HYDATID CYSTS. Case of cysticercus cellulosæ of posterior portion of the right parietal lobe. *J. M. Forster*, ii. A-46.

Cyst of base causing deviation of the two olfactory nerves. *Allex*, ii. A-46.

Cases of multilocular echinococcus of the brain. *Max Bider*, ii. A-46.

Case of sudden death from cerebral hydatid cyst. *L. Bazin*, ii. A-47.

OSTEOMA AND HYPEROSTOSIS CRANII. Four cases of hyperostosis cranii. Channels of the meningeal vessels sometimes strongly marked, sometimes nearly obliterated. *Putnam*, ii. A-50, 51.

Case of osteoma of base of right frontal lobe. *Fraser*, ii. A-51.

Case of autogenic exostosis of the skull. *L. Damaye*, ii. A-51.

Thyroid extract tried in one case of hyperostosis without benefit. *Starr*, ii. A-51.

TUMORS OF THE AQUEDUCT OF SYLVIUS AND OF THE FOURTH VENTRICLE. Case showing unmistakable symptoms of a tumor in the right central convolutions. Cured by full doses of mercury and iodide of potassium. *Althaus*, ii. A-44, 45.

Patient deficient in mental power; staggering gait; patellar reflexes normal. *J. Collins*, ii. A-45.

Somnolence a very important symptom in the diagnosis of tumors in the central part of the brain. *Dana*, ii. A-45, 46.

Case of unrecognized tubercle of the fourth ventricle, in a case showing right inferior and superior facial paralysis and conjugate deviation of the eyes. *Bechterew*, ii. A-46.

TUMORS OF CORPORA QUADRIGEMINA. Two prominent symptoms,—unsteady gait and oculo-motor paralysis. Vision not materially altered except by the condition of optic neuritis,—constant feature of such cases. *Guthrie and Turner*, ii. A-41.

Case showing two signs laid down by Nothnagel as pathognomonic, but in which ophthalmoplegia was well developed long before marked ataxy set in. *Ransom*, ii. A-41.

Diminished hearing on the right side in a case of tumor of the corpora quadrigemina depending on destruction of posterior quadrigeminal tubercle on left side. *Weinland*, ii. A-41, 42.

TUMORS OF CORPUS CALLOSUM. Symptomatology as shown by published cases: (1) gradual mental change; (2) moderate headache, vomiting, and optic neuritis; (3) hemiparesis with rigidity, with or without convulsions; (4) or convulsions without paresis; (5) integrity of cranial nerves, and (6) little or no change in the tendon-reflexes. But mental change seems to be almost the only constant one. *Ransom*, ii. A-43.

Case of gliosarcoma or neuroglioma lying between the two hemispheres, merging into their tissues on either side and with no distinct capsule, but rather growing into the frontal lobes equally. *W. Allen Starr*, ii. A-43.

Case of dermoid cyst of anterior part of corpus callosum. *Bathurst*, ii. A-44.

TUMORS OF FRONTAL LOBES. Case in which symptoms indicated lesion in middle third of ascending frontal convolution. At autopsy tumor found at base of first two frontal convolutions with atrophy of pre-Rolandic convolution. Shows that it is necessary to make a very large opening in the skull in every case, in order to avoid being misled by the symptoms of localization. *Aldibert*, ii. A-37.

Case of gummatous growth of the right frontal lobe with no other appreciable changes in the cerebrum. Psychical symptoms. *Lépine*, ii. A-38.

Case of large glioma occupying the centrum ovale in the right frontal lobe. Absence of optic neuritis and of the stupor and somnolence so often found in tumors of the frontal lobe. *F. X. Dercum*, ii. A-38.

Case in which frontal headache, general convulsions, head and eyes turned to the right, deficient sight, amnesia, dyslexia, anosmia, right facial paralysis, and hemiparesis, muscles being in state of hypertonicity. Large glioma in the region of the second left frontal convolution. *Obici*, ii. A-38, 39.

TUMORS OF OCCIPITAL LOBE. Tumor occurring as result of railroad accident. Case for three years exhibited symptoms strikingly similar to those of traumatic hysteria. Results of autopsy. *Noyes*, ii. A-40, 41.

Tumor of occipital region destroying right occipital lobe, especially posterior and under surface. *Palisadon*, ii. A-41.

Tumor in left occipital lobe, in basilar surface, compressing and displacing left crus, found at autopsy. *Carter*, ii. A-41.

TUMORS OF OPTIC THALAMUS. Case of glioma, involving right thalamus and compressing optic tract, in which there was flaccid paralysis, diminished patellar reflex, and rapid onset. *E. D. Fisher*, ii. A-42.

Tubercle of left optic thalamus with attacks of tetanoid rigidity and presence of well-marked intention-tremor in the right arm. *A. J. Edwards and Gustav Besold*, ii. A-42, 43.

BRAIN, DISEASES OF (continued).

TUMORS OF PONS VAROLII. Case beginning by pain referred to the extremity of the malar twig of the trigeminal nerve. Gumma appeared to press equally on the reticular formation and the pyramidal bundle of the pons. *De Havilland Hall*, ii. A-44.

TUMORS OF TEMPORO-SPHENOIDAL LOBE. Tumor involving lower right temporo-sphenoidal lobe. Absence of changes in sensory tracts of pons, crus, and internal capsule points to cortical areas as seat of sensory disturbances. *Mackay*, ii. A-39, 40.

BRAIN, SURGERY OF.

Statistics of 162 cases operated upon for brain-tumor. Analysis considerably at variance with Chipault's. *Starr*, ii. A-51.

Much aid first expected from Rœntgen or X-rays, but bones of head will absolutely preclude use of method in diagnosis. *Keen*, ii. A-51.

Complete exploration of lobe necessary to properly judge of extent of lesion. Large flap and detachment of large portion of calvarium with burr. Applicable in numerous diseases, particularly microcephalus and epilepsy. *Doyen*, iii. A-1.

New method of cerebro-cranial topography for brachycephalic and mesaticephalic children,—an apophyso-orbito-supraprotuberantial curved line. *Lannelongue and Mauclaire*, iii. A-1.

Method of trephining in which bone disc is kept attached by a flap of scalp for the retention of vitality. *Cotterill*, iii. A-3.

Subdural implantation of rubber tissue after trephining. *Abbe*, iii. A-3, 4.

Loss of bone-substance replaced by celluloid plates. *Von Eiselberg, Fraenkel*, iii. A-4.

Poor results obtained from celluloid plates. Tibial osteoperiosteal flaps preferred in suitable cases. *Czerny*, iii. A-4.

Case in which aluminium was used to repair cranial defect. More satisfactory than bone-grafts or decalcified bone. *Lambotte* iii. A-4.

Oblique instead of vertical division of bone to insure better support and broader base. *Carl Beck*, iii. A-4, 5.

New instrument for the detachment of the dura. *Poirier*, iii. A-5.

Chisel more useful than trephine in many cases of depression. *C. B. Parker*, iii. A-5.

Corner chisel and mallet preferred, though circular saw favorably thought of. *J. B. Hamilton*, iii. A-5.

Use of chisel in infants and children not approved of. Powell's mortality with electrical saw—for idiocy and epilepsy—lower than that reported by any other surgeon. *Dana*, iii. A-5, 6.

With electrical saw operation in seven cases required not over twelve minutes. Probably only adaptable to straight-line incisions. *Hammond*, iii. A-6.

Pulse reduced sometimes to twenty beats following several chisel- and mallet- blows in rapid succession. Case in which artificial respiration required. *Collins*, iii. A-6.

Attributed to inhibition from irritation of the dura. *Dercum*, iii. A-6.

After-effects of use of chisel do not indicate much cerebral shock or concussion. *Fisher*, iii. A-6.

Intra-cranial pressure present in stupor and coma. When patient cannot be roused by supra-orbital pressure and pupils do not react to light, operation imperative. When stupor deep and, nevertheless, patient can be roused, close watching for indications as to course taken by the case. Delirium without unconsciousness a contra-indication. If operation performed, opening at least two inches by one inch and incision of dura. *Bullard*, iii. A-6, 7.

Dura to be opened only when necessary, but without hesitation. *Bradford*, iii. A-7.

Opening of dura advantageous only when fluid underneath. After being opened dura adheres to overlying tissues, constituting thick mass involving brain-tissue and therefore undesirable. Presence of fluid detected by ballottement. *Elliot*, iii. A-7.

Next to asepsis, time probably the most important factor in the success of an exploratory cranial operation. *Bullard*, iii. A-7.

The after-condition of a patient should be considered in the determination of operative procedures, many cases in pitiable condition requiring neurological treatment later on. *Prince*, iii. A-7, 8.

If dullness or loss of consciousness slowly develop, if paretic symptoms or twitching of muscles appear, if perversions of sensation not due to error of diet or constipation present, exploratory trephining. Chill indicates presence of pus and probably pressure symptoms; fever points to inflammatory process. Prolonged tenderness upon pressure over site of injury an almost invariable sign of fracture of inner table at that point and local irritation of dura mater. *B. B. Davis*, iii. A-8.

Subcortical glioma affecting mainly arm-centre safely removed, with improvement in paralytic symptoms. *A. C. Wood, J. W. White*, iii. A-22.

Case of the same kind, area removed being upper part of ascending frontal and parietal convolutions, anterior part parietal lobule, and adjacent portion marginal convolution. Although entire growth not removed, complete cessation of pressure symptoms, improved mental tone, and reduced paralysis. Colored plate. *Beevor and Balance*, iii. A-22, 23.

Results in foregoing cases show that gliomata and infiltrating tumors generally should be removed surgically and as completely as possible. *Editorial, Boston Medical and Surgical Journal.*

Incomplete removal of spindle-celled sarcoma from hand- and arm- centres, with marked and lasting improvement of all typical symptoms of brain-tumor. *Dana and Conway*, iii. A-24.

Removal of cerebral sarcoma with recovery of use of affected limbs. *Murray and Richardson*, iii. A-24.

Four months after operation, in a case of cerebral sarcoma, complete atrophy right disc, outlines of left hazy; nerve white except on nasal side, where nerve was grayish red. *Riegner*, iii. A-25.

Small cyst found in case of diffuse gliomatous degeneration with non-operable tumor underneath. Relief from operation, but ultimate death. *Bruzelius and Berg*, iii. A-25.

Tumor weighing one pound removed from left hemisphere, cavity being refilled by apparently normal brain-tissue. Aphasia greatly improved, power of motion rapidly returning. *M. Richardson*, iii. A-25, 26.

Tumor weighing nearly ten ounces requiring an opening of skull $5\frac{1}{10}$ inches by $4\frac{1}{5}$ inches. Removal and lasting recovery. *Bramann*, iii. A-26.

Successful removal of growths. *Kappeler, Syme, Wagner, Gajkiewicz*, iii. A-27.

Case in which the operation was followed by death in fourteen hours with apparent implication of medulla. *Nason*, iii. A-27.

Case of intra- and extra- cranial cysts successfully removed, showing correctness of theory regarding origin of dermoid cysts. *Tillaux, Lannelongue, Walther*, iii. A-27.

Traumatic cerebral cyst developed from injury received twenty-five years before, causing epilepsy. Successful operation. *Eskridge and McNaught*, iii. A-27.

Unoperated case in which symptoms suggested extensive infiltration, while autopsy showed backward extension not so great as indicated by hemianopsia. *Walton*, iii. A-27, 28.

Position of pain gives no clue to position of tumor. *Starr*, iii. A-28.

Cerebral tumor of large size may be present without causing optic neuritis; optic neuritis may exist without cerebral tumor; optic neuritis may entirely disappear after removal of cerebral tumor, subsidence being due to removal of intra-cranial pressure. *J. Taylor*, iii. A-28, 29.

Trephining warranted even when no hope of removing tumor, when progressive decrease of visual acuity. *Sänger*, iii. A-29.

Palliative trephining in three cases of cerebral tumor. *Albert*, iii. A-29.

Case in which trephining performed for relief of intra-cranial pressure. *Diller and Buchanan*, iii. A-29.

Lumbar puncture and removal of cerebro-spinal fluid for relief of headache of brain-tumor. Pain increased during flow, but relieved forty-eight to seventy-two hours, when operation renewed. *Jacobi*, iii. A-29, 30.

BREASTS. See MAMMARY GLAND, DISEASES OF.

BRIGHT'S DISEASE. (See also ALBUMINURIA.)

PATHOLOGY. One single pathological process subject to modalities of microbian origin, involving the connective-tissue stroma and the secretory substance, independently or separately, with fibroid, contracted kidney as ultimate phase. Occurs as secondary manifestation of many infectious diseases. *Editorial, Boston Medical and Surgical Journal*, i. E-6, 7.

Experiments with various toxics and clinical facts show that the pathological process is a uniform one, the epithelium of the convoluted tubules, the epithelial cells of the straight tubules, the glomeruli, the interstitial tissue, and vascular walls being, in turn, involved. *Burmeister*, i. E-7.

When toxic substance reaches kidney through nutritive artery it exerts an elective action upon the epithelial cells of convoluted tubules, with lesions of protoplasm, steatosis, and coagulation necrosis. *Vandervelde*, i. E-7, 8.

Cases seemingly showing that parenchymatous nephritis may result from a retention of urine and infection of blood by bacteria in themselves capable of causing nephritis. *Favre*, i. E-8.

Case in which nephritis was due to infection through skin wound. *Sacaze*, i. E-8.

Microbes, by means of their toxins, are able to produce kidney disease without being present *per se* in the organ. *Holst*, i. E-8.

Cases in which necrosis of renal tubules seemed due to repeated convulsive attacks, —*i.e.*, muscular fatigue. Delirium and restlessness possible causes, thus explaining beneficial effects of narcotics and sedatives. *Reichs*, i. E-8.

Cases of lethal nephritis due to β-naphthol 2-per-cent. ointment applied for scabies. *Baatz*, i. E-8, 9.

Case showing that absorption of alimentary ptomaines which kidneys cannot eliminate may give rise to lethal poisoning. *Diculafoy*, i. E-9.

Experiments supporting Virchow's view, that there exists an acute parenchymatous nephritis. *Senator*, i. E-9.

Acute and chronic parenchymatous nephritis and contracted white kidney belong to tubal-nephritis class, and, becoming chronic,

BRIGHT'S DISEASE (continued).

involve afferent vessels and glomerular alterations; while so-called chronic nephritis is, from the beginning, a vascular nephritis. *Aufrecht*, i. E-9.

Seventy cases showing causal relationship between ulceration of the duodenum and interstitial or tubal nephritis, or both combined. *Perry and Shaw*, i. E-10.

Acute form less frequent among soldiers in Algeria and Tunis than in France, showing the influence of temperature as cause; while the reverse is the case as regards the chronic form, pointing to effect of malaria in the etiology of Bright's disease. *Famechon*, i. E-10.

Of all causes of form known as chronic interstitial nephritis (synonyms: cirrhotic kidney, granular contracted kidney, gouty kidney) long-persistent dyspepsia most important. *Rodley*, i. E-10.

DIAGNOSIS AND SYMPTOMATOLOGY.

1. Decrease of hæmoglobin in the blood; proportionate to severity of disease, always observed in parenchymatous nephritis; while in interstitial form hæmoglobin increases, especially in the beginning. 2. Blood-pressure falls at first in parenchymatous nephritis, rises later on, but never to the height reached in contracted kidney, in which disease it rises at the onset and may after years reach 220 millimetres Hg,—*i.e.*, twice the normal. *Von Ziemssen*, i. E-11, 12.

Appearance of great quantities of uric acid in the blood of nephritics not as constant as observations of Jacobi might lead one to think. *Fodor*, i. E-12.

Worst eye-symptom retinitis albuminurica; rarely disappears, while optic neuritis may subside without leaving atrophy. Most frequent eye-symptom—engorgement of the retina with blood, more or less swelling of the nerve, white patches strewn over red background of fundus—usually indicates terminal stage. Sudden blindness may occur through action of urea on visual centres in acute cases and may end in recovery. *Van Fleet*, i. E-12.

Blindness due to œdema of optic sheath. Pupil reaction may be preserved, enfeebled, or lost; if preserved, prognosis good. If œdematous pressure great, permanent blindness may result from nerve-fibre degeneration. After transitory blindness nerve completely normal. *Rothmann*, i. E-12, 13.

Case in which sudden failure of vision in granular kidney showed that terminal stage had been reached. Case showing retro-orbital hæmorrhage and detachment of the retina in the same disease. *West*, i. E-13.

Renal disease and cardiac hypertrophy existing together must be regarded as common effects of a chemical poisoning of the blood. *De Dominicis*, i. E-13.

Mental aberration, illusions, hallucinations, general confusion, impairment of memory, aphasia, neuralgia, paralysis, etc., connected with renal lesions. *Bremer*, i. E-13.

Case in which mortal nephritis followed mumps. *Le Roy*, i. E-13.

Cases of parenchymatous degeneration of kidney, proven by autopsy in which the causative element was chronic malarial infection. *A. Gray*, i. E-13, 14.

Case of nephritis in which ordinary treatment gave no result. A characteristic access of ague pointing to etiology, large doses of quinine caused rapid improvement. *Bermann*, i. E-14.

Case of acute nephritis from cold attended by an erythematous rash and extensive desquamation. *Waldo*, i. E-14.

Case in which ulcer appeared as first symptom in case following a rapid course, showing at autopsy degeneration of convoluted tubules with slight arteritis. *Etienne*, i. E-14.

Case developed suddenly without usual causes, during secondary period of syphilitic infection. *Thiroloix*, i. E-15.

Case in which hereditary syphilis appeared as etiological factor. *Lévi*, i. E-15.

Cases illustrating value of examination of urine, whatever be the disease complained of. *Fussell*, i. E-15.

Daily measurement of quantity of urine as guide in pure interstitial form, increase up to about 100 ounces; in chronic diffuse increase somewhat above normal; chronic parenchymatous or subacute average quantity far below normal. *Ogden*, i. E-15.

A number of cases showing renal casts in the urine without true albuminuria. *Kossler*, i. E-64.

Presence or absence of albumin in the urine is not nearly of as much diagnostic and prognostic importance as the morphological evidence of kidney disease afforded by the presence or absence of casts. *Ludwig Bremer*, i. E-64.

Renal casts divided into three groups,—First: hyaline and blood-casts, which, if found alone, merely indicate the presence of some irritation and consequent hyperæmia of kidney, but not of sufficient severity to produce a true tubulitis with consequent desquamation of the epithelium. Second: epithelial, granular (brown and pale) and fibrinous, all of which indicate acute inflammation of the tubules of the kidney, but of different degrees of severity and different stages of progress. Third: fatty casts, when numerous and persistent, and waxy casts, both of which indicate long-continued and essentially chronic inflammation of the kidney, while the latter especially indicate the near approach of a fatal termination. *A. E. Austin*, i. E-65.

Cases of primary acute nephritis in

children. *Lueck*, *Carpenter*, *Brigham*, i. E-15.

Acute primary form in infant soon after birth; difficult and painful urination; fever; eclamptic convulsions; death. *Root*, i. E-15.

A third form of recovery, the "cicatricial," may take place in acute Bright's disease, although albuminuria may persist. *Bard*, i. E-16.

TREATMENT. Kidneys require prolonged rest if inflammation present. Rigid milk diet months, or years, if need be. Skin to be kept efficient by warm clothing or bedclothes and baths. Mildest aperients infrequently used for constipation. To avoid tube-cast and epithelial choking of tubules, alkaline diuretics in considerable doses thrice daily in acute and chronic cases, and digitalis, broom, squills, etc. In severe dropsy and œdema of lungs violent purgation usually advised, but encouragement of action of skin and kidneys by hot, wet blankets, etc. In uræmic convulsions half-dozen leeches to the loins. In cirrhotic kidney iodide of potassium only drug valuable. Change of climate when disease not too far advanced. *McLachlan*, i. E-16, 17.

When acute or subacute attack appears, more or less long sojourn in bed, patient lying between blankets. Warm climate, but not on or near the sea. Brushing of skin, but no baths, lest patient take cold. Moderate exercise or massage. Pregnancy contraindicated; sexual sobriety important. Milk the food and medicine *par excellence*; 2 quarts daily need not be exceeded. When marked improvement, vegetarian diet. Purgatives and diuretics only remedies needed, and caffeine subcutaneously if heart show signs of failure. *Sapelier*, i. E-17.

Hot baths and milk diet best measures. Diuretics useless. Though calomel acts as such, stomatitis is difficult to avoid. *Repenak*, i. E-17, 18.

None of the reasons urged in favor of a milk diet valid. Observed cases always felt better on ordinary diet. In chronic cases latter, with meat especially, beneficial by stimulating heart, unless marked tension exist. *Hale White*, i. E-18.

Loss of albumin main point to be counteracted. Loss not made up by increase of proteid food. Rich proteid diet may lead to retention of nitrogenous extractives. Hence, 6 ounces of meat, 13 ounces of bread, liberal allowance of vegetables and fruit, 1½ ounces sugar, 5 ounces fat a typical diet in chronic albuminuria. Milk mainly useful in acute cases when loss of appetite, or, in addition to above, mixed diet. *Hirschfeld*, i. E-18, 19.

In parenchymatous nephritis with threatening uræmia milk diet absolutely satisfactory. Effect different in gouty albuminuria, where milk useless and even harmful in working-people, by affording insufficient food. Here drugs to eliminate uric acid; tonics and strontium salicylate indicated. *De Grandmaison*, i. E-19.

Lactate of strontium beneficial, in a large number of cases, when sclerosis has not begun. Produces nausea in powder, but not when dissolved in water, 1 to 6 parts, three or four tablespoonfuls being given daily. *Ried*, i. E-19.

Bromide of lithium of great service in acute and chronic forms: ℞ Bromide of lithium, 1¼ to 2 parts; bicarbonate of soda, 4 parts; distilled water, 240 parts. M. Sig.: Three or four tablespoonfuls given daily. *Polakoff*, i. E-19, 20.

Methyl-blue in 12 cases of acute infectious form; ⅓ grain three times daily in capsules. No gastric disturbance unless drug taken early in the morning. Diuresis increased after 5 to 8 grains; œdema disappeared after eight days, ascites after ten to twenty. Given subcutaneously in uræmia. *Löwenthal*, i. E-20.

Ointment of pilocarpine nitrate, 1½ grains to 3 ounces of vaselin, rubbed in several weeks, caused rapid amelioration. *Mollière*, i. E-20.

Extract of fresh sheep- or pig- kidney possesses undoubted diuretic action and reparative power. *Schiperovitsch*, i. E-20, 21.

Galvanism and sodium-chloride dielectrolysis. Positive pole to nape; negative, soaked in saturated salt solution and covering large surface, to lumbar region; a 10- to 15-milliampère current thus passes through kidneys. Sittings one-half hour each three or four times a week. Vasomotor stimulation and diuresis produced. *De Keating Hart*, i. E-21.

Divulsion of sphincter ani in painful defecation as complication not a recommendable operation when Bright's disease present. *Walling*, i. E-21.

BRONCHITIS.

PATHOLOGY. Post-mortem examination of a case of primary membranous bronchitis showing miliary tuberculosis in pia mater, lungs, peritoneum, spleen, intestines, etc. Bacillus of Friedländer. *Magniaux*, i. A-83, 84.

In sputum of two cases of putrid bronchitis, two species of bacillus. First, characteristics of coli bacillus, short, thick rods; did not liquefy in gelatin; pathogenic for guinea-pigs and rabbits. Second did not liquefy in gelatin; pathogenic for mice and guinea-pigs. *Hitzig*, i. A-84.

Bronchial catarrh of old men, especially in institutions, generally the result of infection from want of cleanliness and overcrowding. *Delacour*, i. A-84.

Inflamed mucous membrane of trachea and largest bronchi in certain cases. Post-

BRONCHITIS (continued).
mortem longitudinal bands or ridges often found. Formed chiefly of granulation-like tissue, quite large nerves detected traversing this tissue. *Auld*, i. A-84.

Case of triple phlegmasia and purulent pleurisy consecutive to chronic bronchitis with bronchiectasis. *Meunier*, i. A-84.

General emphysema in a case of capillary bronchitis. *J. R. Gibson*, i. A-85.

TREATMENT. Sodium hyposulphite in fetid bronchitis, daily doses of 60 grains; large doses cause diarrhœa. Useful in bronchial dilatation and pulmonary gangrene. But one remedy to calm cough of herpetic individuals,—sulphate of quinine in doses of 23½ to 31 grains for adults and 6 to 12 grains for children, taken in two or three doses half an hour apart. Patient must feel buzzing in the ears, vertigo, etc. *Lancereaux*, i. A-85.

In capillary bronchitis injections of aromatic spirits of ammonia, 15 minims to 1 drachm, into the arm, according to the age of child. Acts quicker and better than by the mouth. *Morell*, i. A-86.

To use, in the beginning of a case of acute or subacute bronchial catarrh, carbolized syrup, turpentine, eucalyptol, or balsam of Tolu is to aggravate the disease; only indicated when decline is established. *Gingeot*, i. A-86.

Inhalations of ozone in chronic forms. *Régnier*, i. A-86.

[Present views relative to the microbian origin of even common bronchial catarrhs doing much to influence the choice of remedies in these affections. First step in morbid changes probably consists in a disorder of vasomotor innervation, which causes congestion and places the organism in a state of lessened resistance. If this view be correct, remedies are to be sought which shall improve rather than lower vasomotor innervation, on which the inflammatory changes so much depend. *Boston Medical and Surgical Journal*, i. A-86.]

BULBAR PARALYSIS. See Paralysis.

BULPISS.

Undescribed skin disease; lesions most frequent around knees, abdomen, neck, and face; crops of minute, reddish papules, which break up and gradually disappear, leaving a discolored spot; undoubtedly contagious. *Otto Lerch*, iv. A-10.

[It is impossible to say to what this affection corresponds and what may be its nature; here is still another subject for investigation. L. Brocq, Assoc. Ed., iv. A-11.]

BUNION. See Hallux Valgus.

BURNS.

PATHOLOGY. Mortal changes induced in internal organs by superficial burns due to stases, thromboses, thrombo-emboli, etc., produced by agglutination of red corpuscles, blood-fragments, discs, and leucocytes. Vascular occlusion commonest in lungs and kidneys. *Oscar Silbermann*, iii. M-25.

Mechanism of death: Within a few hours complete sideration of the nervous system. The gases of the blood diminish markedly. The organism of burned persons manufactures toxins in large quantity and of characteristically noxious quality. *Roger and Guinard*, iii. M-25, 26.

TREATMENT. Saturated solution of picric acid obviates all pain; prevents formation of an ulcer; in a few days brings about perfect cure. *Thierry*, iii. M-26.

Picric acid analgesic, antiseptic, keratogenous in solution 1 to 200. Free from accidents sometimes provoked by antiseptics. *Louis Filleul*, iii. M-26.

Thiol in burns of all degrees. After dusting burn with powdered boric acid entire surface painted with solution of equal parts of thiol and water; a layer of greased cotton laid on the burn. *A. Bidder*, iii. M-26.

Thiol an excellent topical remedy when used with occlusive dressing. *P. Giraudon*, iii. M-26.

Application of ichthyol at once eases the pain and the anodyne effect is lasting. *Leo Leistikow*, iii. M-26, 27.

Aristol of value. Pain almost instantly relieved and healing rapid. *Haas*, v. A-32.

Airol, as topical agent, rapid in effect and unirritating. *J. Fahm*, v. A-40.

Solution of guaiacol procures immediate relief. Interstitial injections of a 1 in 10 or a 1 in 20 solution, Pravaz syringeful. Action more slowly produced, subsides more gradually than cocaine. *Lucas-Championnière*, v. A-85.

Ointment composed of 1 part of powdered nut-gall and 8 parts of borated vaselin quickly diminishes the abundant suppuration and deodorizes the secretion. *S. Grose*, v. A-113.

Application of a decoction of blueberries. *Winternitz*, v. A-109.

CAMPHOR, UNTOWARD EFFECTS.

Poisoning with about 3 drachms taken as a remedy. Giddiness; nausea; sensation as though carried through the air. Convulsions without deviation of the eyeballs; pupils small. Breathing rapid; cyanosis; coldness and collapse. Subcutaneous injection of brandy. Memory markedly affected for an hour after recovery. *Maurice Craig*, v. D-3.

CANCER. See Tumors and the titles of the various organisms: Liver, Larynx, etc.

CARAWAY-SEEDS, POISONING.

Poisoning from 3 ounces in about an hour. Dullness; extreme uneasiness; cheeks deeply flushed; patches over malar bones; pupils dilated. Vision blurred, objects appearing as if surrounded by white mist. Breath had distinct, though not strong, odor of caraways. No record of any other case exists. *J. A. Wheeler*, v. D-3.

CARBOLIC ACID, POISONING.

Tolerance of carbolic acid increased by presence of sulphates in the organism; latter should be used in carbolic-acid poisoning, though their action is very limited. *Marfori*, v. D-4.

Recovery, after 3 ounces of pure carbolic acid had been taken for suicidal purposes, by appropriate treatment, including thorough washing out of the stomach. Hoffmann's assertion that mortal minimum dose of carbolic acid is $2\frac{2}{3}$ ounces contradicted. Confirms that in massive doses it acts as a depressor upon medulla and cord, causing coma, loss of sensibility, of reflexes, and stertorous breathing. *Morochovictz*, v. D-4.

Two cases of carbolic-acid coma induced by application of carbolic compresses to the skin. *R. Clement Lucas and W. Arbuthnot Lane*, v. D-5.

[Herlyn reports a case in this connection of profound poisoning from carbolic acid following its use as a vaginal injection. The case is interesting in that, while the amount injected was only $1\frac{1}{2}$ drachms dissolved in 6 ounces of water, the symptoms were profound: prolonged syncope; pulse-beat, 30 to 35 per minute; infrequent and superficial respirations; clonic convulsions, and inactive pupils. The patient had several profuse, bloody stools, which had a strong odor of carbolic acid. The urine, however, was normal. C. SUMNER WITHERSTINE, Assoc. Ed., v. D-5.]

Case in a newborn child whose circumcision wound had been dressed with a 3-percent. carbolic-acid solution. *Bozdanik*, v. A-50.

Coma from carbolic-acid dressings. *Lucas and Lane*, v. A-50.

CARBONIC OXIDE, POISONING.

Body-temperature elevated; decomposition of proteids enormously increased. Red blood-corpuscles considerably increased. *Marthen*, v. D-5.

Appears to displace oxygen of the blood, causing a fall of temperature. Exposure to cold air dangerous. Hot bath might be useful when surface-temperature low. *Haldane*, v. D-5.

CARBUNCLE. See ANTHRAX.

CASTOR-SEEDS, POISONING.

Case of poisoning,—vomiting, epigastric pains, purging, stools slightly blood-stained, restlessness, intense thirst. Semicomatose condition, strychnine hypodermically, champagne, turpentine and laudanum stupes to the abdomen. Recovery. *Officer*, v. D-6.

CATARACT. See EYE.

CATARRH. See NOSE, DISEASES OF.

CAUDA EQUINA, DISEASES OF.

First and most striking sensory symptoms: boring pains in sacral region, extending into extremities, increased by percussion over sacrum. Later on anæsthesia of mucous membrane of the bladder and rectum, external genitals, and lower portions of buttocks. *Raymond*, ii. B-54.

Case in which removal of a tumor outside of the dural sac resulted in complete recovery. *Laquer*, ii. B-54.

Case of hydatid cyst of vertebral canal which had completely compressed lower portion of conus medullaris 3 centimetres, surrounding region of cauda equina. *A. Souques, Marinesco*, ii. B-54.

Tumor of the cauda equina may, in its early stages, simulate tabes dorsalis by presenting some of the symptoms common to both. *Peterson*, ii. B-55.

The ano-vesical centre cannot yet, with certainty, be located in the conus medullaris. *Luxovitch*, ii. B-55.

Case of hæmorrhage in the conus medullaris. No abnormal symptoms with regard to mobility; muscles strong and well nourished, but tendon-reflexes appeared to be diminished. Rectal and vesical incontinence; hyperæsthetic zone over the buttocks and posterior surface of thighs, perineum, scrotum, and penis. *Raymond*, ii. B-55.

Man, 61 years old, who, for a year and a half before report, became dizzy on assuming upright position. Retention of urine; frequent diarrhœa; loss of sexual desire; no ataxia of upper extremities. Diplopia; numbness from the waist down; gradual loss of sensation to touch and pain in both feet. Right knee-jerk abolished, left side normal. Intra-medullary gliosarcoma 3 inches long found extending from second lumbar segment to cauda equina, compressing cord on ventral side. *Fischer, Van Gieson*, ii. B-55, 56.

CEREBELLAR ABSCESS.

Fatal case of cerebellar abscess resulting from chronic otitis media. Colored plate. *Gorham Bacon*, iii. A-18, 19.

TREATMENT. When improvement follows trephining and this, in turn, followed by cerebral symptoms without localizing phenomena in cerebrum, pus to be sought in cerebellum. Posterior downward incision. *Monnier*, iii. A-19.

Case of cerebellar abscess due to middle-ear disease, in connection with subperiosteal

CEREBELLAR ABSCESS (continued). and subdural abscess. Evacuation and recovery. *Murray*, iii. A-20.

In opening skull for cerebral abscess surgeon need not always be anxious about replanting bone removed, gaps being soundly filled up. *Rushton Parker*, iii. A-21.

Cerebellar abscess may be mistaken for temporo-sphenoidal abscess unless cells and antrum thoroughly explored. *Hugh E. Jones*, iii. A-21.

CEREBRAL ABSCESS.

PATHOLOGY. Streptothrix found in a case characterized during life by epileptiform attacks. *Féré and Faguet*, ii. A-52.

Case in which contents tested microscopically by cultures and by inoculations appeared to be absolutely sterile. Affords explanation of encysted abscesses. *Brouardel and Josué*, ii. A-52.

Three cases in right cerebral hemisphere, all occupying nearly same position in centrum ovale, all attended with left lateral homonymous hemianopia, with great weakness of left arm and leg, loss of power greater in the leg than in the arm, face escaping almost entirely, and with sensory impairment on the left side. *J. T. Eskridge*, ii. A-52.

Case of multiple cerebral abscess due to pneumococcus coincident with abscess of the lung. *L. Siron and O. Josué*, ii. A-52.

Two abscesses of brain caused by septic emboli resulting from gunshot wound of the lung inflicted thirty-two years before. *Eskridge and Parkhill*, ii. A-52.

Two cases of metastatic abscess of the brain from primary actinomycosis of the lungs. In first case both apices of the lungs involved, therefore Israel's great point in the differentiating of actinomycosis from tuberculosis—that the condition affects the base of the lungs—does not always hold good. *C. H. Martin*, ii. A-52.

Case of cerebro-spinal actinomycosis. *Dor*, ii. A-53.

Case of unilateral epileptiform seizures in which not only cortical motor centres had lost all inceptive function, but transmissive function of pyramidal tracts of side also held in abeyance. *Von Monakow*, ii. A-54.

DIAGNOSIS. Chronic abscess not always recognizable; pyrexia, headache, optic neuritis not reliable unless cause clearly determined. In uncertain diagnosis operative procedures should depend upon danger connected with operation to be performed, but antiseptic exploration practically free from risk. To await a positive diagnosis means increase of chances of death. *Murri*, iii. A-14, 15, 16.

TREATMENT. Should always be operated on, diagnosis being easy when etiology carefully considered; generally in temporal lobe. Exploratory puncture first; if pus found, opening to be enlarged, pus removed, and cavity filled with iodoform gauze. *Von Bergmann*, iii. A-16.

If necessary, more extensive procedures —removal auditory canal, etc.—may with safety be carried out. *Glück*, iii. A-16.

Case illustrating value of active intervention. *Picqué*, iii. A-16, 17.

Trephining of mastoid for abscess following otitis. Suppurative myelitis found at autopsy. *Schwartz*, iii. A-17.

Temporo-sphenoidal abscess following middle-ear disease successfully treated by drainage. *Moore*, iii. A-17.

Acute as well as chronic otitis may cause abscess. *Monnier*, iii. A-17.

Series of nineteen such cases. In personal case neither discharge, somnolence, nor fever. Only symptoms present: dullness on percussion over mastoid, lowered internal temperature, diminution of hearing opposite side from abscess, and on eighth day hiccough. Trephining, packing, and recovery. *Eulenstein*, iii. A-17.

Out of eighty-seven cases of trephining for otitis cerebral abscess only present in one. When pus suspected, good surgery to trephine process and await results. *Broca*, iii. A-17, 18.

Case of double mastoid abscess with septic thrombosis of left lateral sinus. Recovery under active surgical measures. *Secker Walker*, iii. A-18.

Double brain-abscess resulting from septic emboli resulting from gunshot wound of lungs thirty-two years previously. *Eskridge and Parkhill*, iii. A-18.

Two forms of abscess,—late and early. Former arises in healthy and deeper tissues. Early abscesses arise in injured area; are easily infected. Fatal meningitis often associated with latter. *Nasse*, iii. A-18.

CEREBRAL HÆMORRHAGE.

ETIOLOGY AND PATHOLOGY. Of 100 non-fatal personal cases 36 were due to syphilis; they occurred in early life, were often multiple in character. Cerebral hæmorrhages were rarely repeated. Many cases showed changed vital conditions and personal habits. *C. L. Dana*, ii. A-28, 29.

Seventy-seven personal cases apparently confirming Dana's views. Longest duration since attack had been twenty-two years. *E. D. Fisher*, ii. A-29.

DIAGNOSIS. In young girls, especially, prolonged unconsciousness may follow concussion, leading to possible diagnosis of graver trouble. Absence of all other symptoms should suggest possibility of mental state alone. *Walton*, iii. A-30.

Case in an infant 5 days old. Notwithstanding absence of marked cerebral symptoms, extensive hæmorrhage into the

brain, no convulsions or even unconsciousness. *T. M. Rotch and A. H. Wentworth*, ii. A-29.

Case in which, at intervals of a few hours during the first day or two, consciousness was regained and entire use of the paralyzed regions for periods of five or ten minutes at a time. *R. D. Bibber*, ii. A-29.

Brain with hæmorrhage into Broca's convolution and the part between Broca and the internal capsule; posterior part of Broca involved. Symptoms almost those of bulbar paralysis. Only other symptom was dilatation of the right pupil, which came on toward the end. *Elder*, ii. A-30.

In a case of cortical hæmorrhage with rupture into the lateral ventricle two symptoms were at variance with authoritative statements: 1. Difference of temperature between two axillæ; paralyzed side 1.2° lower. 2. Conjugate deviation of the head and eyes toward the right (the paralyzed) side. Rigidity of arm on paralyzed side present. *H. A. Royster*, ii. A-30.

After an apoplectic attack, with flaccid unilateral hemiplegia, if bilateral contraction of extremities appear, lasting several days with deviation of head and eyes to hemiplegic side, a diagnosis of capsular hæmorrhage with secondary hæmorrhage of ventricles may be made. *Seppilli*, ii. A-30, 31.

Case of hæmorrhage into the pons simulating opium poisoning. *F. W. Edridge-Green*, ii. A-31.

PROGNOSIS. Three important prognostic indications: 1. Renal disease the most important. 2. Cheyne-Stokes respiration. 3. Hyperpyrexia. If one, two, or all three be present, patient will, in all probability, not recover. Diabetes, chronic alcoholism, typhoid fever, idiopathic anæmia will also exert fatal influence. *A. G. Barrs*, ii. A-31.

TREATMENT. More might be done in prodromal stage if this condition were more carefully studied. In large proportion of cases there were headache, vertigo, sense of fullness in the head, numbness of one side, etc., for a week before attack. Important to heed these warnings where there is atheroma or high arterial tension without atheroma. Rest, vascular sedatives, nitroglycerin, large enemata. Ice-cap of use in allaying restlessness. Aconite to control a too forcible heart's action. When attack has taken place, as soon as patient can swallow, mixture of bromide and iodide of potassium, 30 to 40 grains of former, 10 grains of latter, kept up for several days, then bromide omitted and iodide used alone in increasing doses. *Preston*, ii. A-31.

Radical measures should be tried in suitable cases,—cerebral hæmorrhage into right hemisphere, for instance. Direct operation better than ligation of carotid. *Angel Money*, iii. A-30, 31.

Case of ingravescent cerebral hæmorrhage in which ligation of common carotid stayed progress of paralysis, then a marked improvement. *Dercum, Keen*, iii. A-31.

Period of consciousness following insensibility produced by violence, then lapsing into coma, most important symptom in the diagnosis of middle meningeal hæmorrhage without fracture of skull. *W. J. Taylor*, iii. A-31, 32.

Simultaneous rupture of artery and sinus in fracture of base. Death from hæmorrhage from longitudinal sinus following a blow. *Walton*, iii. A-32.

Persistence of paralysis forty days after operation for traumatic middle meningeal hæmorrhage, followed by rapid and complete recovery. *Alexis Thomson*, iii. A-32, 33.

Delirium, and restlessness two weeks and absence of mental functions six weeks after operation, followed by recovery, with only slight hesitation in speech. *Porter*, iii. A-33.

CEREBRAL SYPHILIS.

DIAGNOSIS. Main mental symptoms: 1. Somnambulism and allied states. 2. Sudden somnolence with ocular spasm or paralysis; when preceded by headache and monoplegia, almost pathognomonic (*q.v.*). *Frank Norbury*, ii. A-72.

Case in which nearly all symptoms pointed out by Gray present. *Diller*, ii. A-72.

Case of multiple paralysis of the cranial nerves, caused by syphilis, cured by anti-syphilitic treatment. *Jacobson*, ii. A-73.

Case of premature cerebral syphilis five months after appearance of chancre. *Roget*, ii. A-73.

Case of cerebral syphilis in a child 10 months old. *Rosa Engelmann*, ii. A-73.

Case of stuttering of syphilitic origin. According to Sikorski, no case of stuttering acquired after the age of 17 years had as yet been observed. *Maïeff*, ii. A-73.

TREATMENT. Mercury and iodide, giving preference to the latter drug and in sufficiently large doses. *Leo. Stieglitz*, ii. A-73.

Inunctions of blue ointment and 60 grains of iodide of potassium three times a day, followed by remarkable improvement. *Nammack*, ii A-73.

Corrosive sublimate in solution injected into the left median cephalic vein after Baccelli's method. Good reports of patient received for some time after. Intra-venous injections in cases in which other mercurial treatment has failed recommended. *Bruni*, ii. A-73.

Two cases in which, after five subcutaneous injections of a 2-per-cent. sublimate solution, considerable improvement. *Mannaberg*, ii. A-73.

CHANCRE. See SYPHILIS.

CHICKEN-POX. See VARICELLA.

CHILBLAINS.

Parts bathed in decoction of walnut-leaves, then dried and rubbed with spirits of camphor. Salicylate of bismuth 10 per cent. in powdered starch then dusted on. For nocturnal itching: ℞ Glycerin, 1½ ounces; rose-water, 1½ fluidounces; tannic acid, 1¾ grains. Salicylate-of-bismuth powder then used as before. If ulcerated, poultices of walnut-leaves steeped in hot water. *Besnier*, iv. A-11.

CHLORAL POISONING.

Case in which patient took 2 grains morphia acetate and 2½ drachms of chloral hydrate. Potassium permanganate apparently had antidotal effect upon the chloral as well as upon the morphine. *Coudert*, v. D-7.

Chloral is almost at once decomposed at and above 60° F. in an aqueous solution of potassium. Assuming poisoning by a dose of 80 grains, 27 grains of potassium necessary, in divided doses, 7 grains every hour, in warm milk, gruel, or barley-water; would probably cause no serious irritation of the gastro-intestinal tract. *Dougall*, v. D-7.

[The reaction may be expressed by the following equation: $C_2HCl_3O_2$ (chloral) + KOH (potassium hydrate) = CHO_2K (potassium formate) + $CHCl_3$ (chloroform) + O (oxygen). C. SUMNER WITHERSTINE, Assoc. Ed., v. D-7.]

CHLORALOSE, UNTOWARD EFFECTS.

Four grains in a tuberculous patient accustomed to hypnotics. Coma; insensibility; caused cyanosis and epileptoid movements of the limbs. *Rendu*, v. A-54.

Five or six similar instances during 1894. *La Médecine Moderne*, v. A-54.

Similar case to Rendu's. *Herzen*, v. A-54.

Cases in which serious symptoms observed. *Delabrosse*, *Dufour*, v. A-54, 55.

CHLORATE OF POTASSIUM, POISONING.

Case in which about 2 teaspoonfuls of the drug were taken in two days. Urine and fæces black. Violent intestinal irritation; great prostration. Evidences of profound alteration of the blood. *Theodore Potter*, v. D-8.

[The lesions and blood-changes are fully noted in a case reported by Ignatieff, of Moscow (see ANNUAL, 1894, vol. iv. G-19). C. SUMNER WITHERSTINE, Assoc. Ed., v. D-8.]

About 200 grains of the drug taken. Marked cynosis and high temperature; scanty urine, black in color. Later on urine more free, but contained large quantities of albumin; jaundice and marked hepatic tenderness. *McShain*, v. A-125.

CHLOROSIS.

PATHOLOGY. Chlorosis a disorder of development. *Stieda*, i. K-11.

To be attributed largely to abnormal positions of abdominal organs, — gastroptosis, etc.,—the corset being the cause in many cases. *Meinert*, i. K-11.

Splenic enlargement, school-epidemics, etc., suggest infectious causative factor. *Clément*, i. K-12.

Streptococcus albus, staphylococcus albus, and bacillus coli found in blood of cases. *Lemoine*, i. K-12.

When fever present, concomitant condition —tuberculosis, etc.—to be suspected. *Guani*, i. K-12.

Chlorotic subjects often present high position of diaphragm. *Müller*, i. K-12.

Aortic-valve disorder does not aggravate chlorosis and latter tends to increase mitral regurgitation. *Potain*, i. K-14.

TREATMENT. Argument as to whether iron should be administered, physiologists arguing against its use and clinicians for its use. Decision in favor of latter, iron having proven itself a specific, notwithstanding laboratory experiments, provided proper preparation selected. Blaud's pills and acid lactate of iron, daily dose of $\frac{7}{8}$ to $1\frac{3}{4}$ grains, have shown best results. Hypodermically, same quantity in 5-per-cent. solution. *Munich Congress of German Physicians*, i. K-12 to 14.

Increase of hæmatins ceases in about eight days, when diet alone depended upon; continues when iron administered. *Stifler*, i. K-13.

Iron may be given even when gastric catarrh present. *Reinert*, *von Ziemssen*, *Baumler*, i. K-14.

Glycerophosphates of lime, iron, sodium, magnesium, and potassium either by subcutaneous injection or by the mouth (see GLYCEROPHOSPHATES, section A, this volume), if elimination of phosphoric acid is increased in proportion to that of urea with diminished oxidation changes. Contra-indicated where the oxidation changes are increased. *Albert Robin*, v. A-79.

Diluted hydrochloric acid, 5 drops before meals, causes iron to be particularly well supported. *Edlefsen*, i. K-14.

Repose in bed most valuable adjuvant to iron; better than sea-side or mountains. *Nothnagel*, *Edlefsen*, i. K-14.

Rest in bed of greatest importance in checking too rapid destruction of red corpuscles. *Hayem*, i. K-14.

Aortic valvular disorders and mitral regurgitation of chlorosis improved by iron. *Potain*, i. K-14.

Removal of gastric disorders by proper

diet and treatment prior to administration of iron. *Hayem, Huchard*, i. K-14.

Case successfully treated with bone-marrow as main food. *C. Forbes*, i. K-15.

Review of the subject of chlorosis. *F. P. Henry*, i. K-15.

CHOLELITHIASIS. See GALL-BLADDER, DISEASES.

CHOLERA.

ETIOLOGY. Vibrios in fæcal matter, as a rule, die within the first 20 days, seldom living 30. Vibrios sometimes present without diarrhœa or other choleraic symptoms, even in formed stools. *Rumpel, Abel, Clausen*, i. D-1.

Such cases, being isolated, had moderately severe or mild attacks, diarrhœal stools then containing many vibrios. *Kolle*, i. D-1.

Some persons exposed to action of vibrios unaffected. Immunity not due to killing of all microbes in the stomach. *Abel and Clausen*, i. D-1.

One hundred and fifty varieties of vibrios differing greatly from Koch's, but growing typical specimens for some time in water. *Dunbar*, i. D-2.

Vibrios in sewage and Seine water, Paris, and in Versailles drinking-water, when no cholera present. *Sanarelli*, i. D-2.

Same observation in the Spree, Oder, and Havel streams and Berlin water-supply. In two latter vibrio pathogenic and gave cholera-red reaction. Massowah vibrio and phosphorescent vibrios from Hamburg probably true cholera vibrios. *Pfeiffer*, i. D-2.

Action of cholera toxin is to produce intestinal lesion, leading to increased virulence of vibrios normally present. Vibrios not killed in intestines, but can be cultivated from contents. *Sanarelli, Kutscher*, i. D-2.

Koch's vibrios traced to farm-yard manure, pig's fæces being found to contain them. No cholera for years in the region. *Kutscher*, i. D-2, 3.

Diagnostic value of vibrios admitted, but etiological importance not established. Epithelial flakes in stools of cholera cases a bad omen. *Klein*, i. D-3.

Cholera vibrio considerably modified by micro-organisms which surround it. Immunity and susceptibility depend upon other microbes in the intestinal tract. Koch's bacillus nevertheless remains the specific cause of cholera. *Metschnikoff, Fawitzky, Rontalcr*, i. D-3, 4.

[Investigations of Metschnikoff are valuable and very suggestive, for the studies of the last few years have produced considerable uncertainty regarding the etiology of cholera. J. P. CROZER GRIFFITH, Assoc. Ed., i. D-4.]

Phagocytes supposed to be the only cholera-vibrio destroyers in the tissues. *Cantacuzène*, i. D-4.

No antagonism between cholera vibrio and comma bacillus. *Kempner*, i. D-4.

Danger of communicating disease by ice not great. *Weiss, Koch*, and others, i. D-5.

Experiments showing that vibrios may survive an entire winter and freezing. *Kasanoky*, i. D-5.

While vibrios may degenerate in well-water, they may not in water containing sufficient food material. *Hankin*, i. D-5.

Vibrios destroyed in fresh milk within twelve hours. *Hesse*, i. D-5.

Experiments showing that they live at least thirty-eight hours; develop until milk coagulates at ordinary temperature; may even live in coagulated milk. *Basenau*, i. D-5.

Evidence showing direct, positive agency of polluted water in the causation and spread of Asiatic cholera. *Oetvös, Fallot, Cassoute, Bouissou, Körber, von Heusinger, Fränkel, Clemow*, and others, i. D-5.

Russian epidemic has shown strong evidence in favor of additional influence of other local conditions. *Clemow*, i. D-6.

Marked influence of winds and moisture. *Rosanoff*, i. D-6.

Prevalence and mortality of Madras Presidency associated with two monsoons, caused by rains induced, raise of subsoil water, and development of conditions suitable for seasonable epidemic. *King*, i. D-6.

Antagonism to "bacteriological antagonistical" view. *Von Pettenkofer*, i. D-6.

Personal intercourse played greatest part in the spread of cholera in the Petrowsk epidemic. *Amsterdamsky*, i. D-6.

PATHOLOGY. Humors, especially blood and urine, may be very toxic and reproduce typical symptoms of mortal cholera in animals. *Bosc*, i. D-7.

Cerebral changes in Asiatic cholera in algid state, as well as in reaction period, of the nature of an acute degeneration and necrosis, and not of a perivascular inflammation. *Tschistowitsch*, i. D-7, 8.

Always a more or less severe glomerular nephritis in the algid stage. *Pernice and Scaglioni*, i. D-8.

DIAGNOSIS. It is now comparatively easy to identify cholera vibrios in stools, during choleraic attack, when such present. *Delépine and Richmond*, i. D-9.

Ali Cohen's method serviceable. *Ringeling, Uffelie*, i. D-9.

PROPHYLAXIS. Solid substance obtained from residue of culture-fluid freed of micro-organisms as immunizing agent. *Ransom*, i. D-9, 10.

Substances found in blood of convalescents afford inconstant immunity. *Sobernheim*, i. D-10.

Haffkine's inoculations in India increased safety of inoculated twenty times. *Simpson*, i. D-10.

CHOLERA (continued).

Out of 3276 uninoculated individuals 47 cases; out of 2936 inoculated 3 cases. *Powell*, i. D-11.

[Neither of these writers reports any experience upon the duration of the protection afforded by the inoculation. This is a matter of great interest and importance. J. P. CROZER GRIFFITH, Assoc. Ed., i. D-11.]

Inoculation by injection of serum obtained from convalescents. *Freymuth*, i. D-11, 12.

TREATMENT. Methylene-violet; 15 to 45 minims, subcutaneously, of a 1-per-cent. aqueous solution or 1$\frac{3}{4}$ by mouth or rectum every three or four hours. *Neufeld*, i. D-12.

Quinine, in doses of about 10 grains an hour, has given best continuous results yet obtained. *Fullerton*, i. D-12.

CHOREA.

ETIOLOGY AND PATHOLOGY. Examination of 140 individuals having suffered from chorea at least two years previously. In 51 heart normal; in 72 symptoms of organic lesion; in 17 cardiac disturbances. No rheumatic history in 66 per cent. Cause: an infection allied to rheumatism, but differing from it. *Osler*, ii. C-16.

An affection of cerebral cortex. Loss of control which sensitive areas possess over motor areas. *Brush*, ii. C-16, 17.

An affection essentially characterized by motor troubles. Heredity the only true cause of psychical phenomena in chorea; are aroused, and not created, by the disease. *Breton*, ii. C-17.

Cases exposed during acute stage to complications apt to endanger life or to bring on lasting cardiac alterations. *Treigny*, ii. C-17.

Chorea provoked by hyperexcitable state of nervous system; attacks only those who are predisposed to it. *Giovanni*, ii. C-17.

Existence of a real hereditary chorea exceedingly doubtful. *Johnston*, ii. C-17.

Infectious origin of chorea minor. Frequently equivalent of attack of polyarthritis or follows an attack of rheumatic fever instead of a relapse. *Meyer*, ii. C-18.

Mortality in chorea much higher than is generally believed. *Barber*, ii. C-18.

ATYPICAL FORMS. Case of paralytic variety preceded and accompanied by articular rheumatism and endocarditis; recovery in three weeks. *Augier*, ii. C-18.

Autopsy in case of hemichorea limited to upper limb; face and lower limb unaffected. Lesions in lenticular nucleus and encroached upon internal capsule behind genu. Destruction of anterior fibres of pyramid and descending degeneration easily traced as far as medulla oblongata. *Sabrazès*, ii. C-18.

Case occurring as complication of gonorrhœa. *Litten*, ii. C-18.

Three groups of arhythmic choreas: Sydenham's chorea (common, paralytic, senile, and that of pregnancy); chronic progressive chorea with two varieties,—hereditary and non-hereditary; symptomatic (symptomatic hemichorea, hemiathetosis, symptomatic general chorea, congenital chorea, and bilateral athetosis). *Lannois*, ii. C-18.

CHRONIC FORMS. Case of chronic chorea. Absence of motor or sensitive hemiplegia, as well as bilateral movements differentiated it from that of cerebral origin. *Chauffard*, ii. C-18, 19.

In majority of cases of chronic chorea in children symptoms differ but little from those of athetosis; both manifestations of an identical cerebral condition. *Ganghofner*, ii. C-19.

Case of chronic progressive chorea, or Huntington's chorea. Not necessarily hereditary; peculiar to adults; distinct disease; mental troubles progressive; cause difficult to determine; exceedingly uncommon; incurable. *Drewry*, ii. C-19.

TREATMENT. Eight cases treated with quinine, 6 to 8 grains daily, and hygienic measures. In one case recovery in 1 week; in second, in 2 weeks; in third, in 10 weeks. In five cases no result; arsenic substituted. *Knapp*, ii. C-19.

But little result from quinine; faith in arsenical treatment. Many cases left to their own course recover. *Putnam*, ii. C-19.

Results from quinine unsatisfactory. *Fry*, ii. C-19.

Cause to be ascertained and dealt with; then cimicifuga. Chloral added if movements persist. *Atkinson*, ii. C-19.

Arsenic can be administered in much larger doses subcutaneously than by the stomach. *Symonds*, ii. C-19.

Exalgin shortens duration. Concomitant treatment: substantial diet, iodide of iron, codliver-oil, and graduated gymnastics. *Mettinheimer*, ii. C-19, 20.

Arsenic efficacious in high doses; $\frac{1}{6}$ grain of sodium arseniate must be quickly reached. Antipyrin in doses of 30 to 45 grains to child 5 years old. *Morvin*, ii. C-20.

Hydrotherapy; wet pack best method,—sheet dipped in water at 50° to 54° F., then lightly wrung out, spread over mattress with oil-cloth; then closely wrapped around patient; latter rubbed from head to foot and placed with sheet in woolen blanket and returned to bed. *Chargeux*, ii. C-20.

Central galvanization and general faradization the two modes that have given most favorable results. Galvanic currents to be preferred in vigorous and healthy children. In weak, anæmic children faradic best. *Roekwell*, ii. C-20.

Most important features: rest of body and mind. Rest in bed according to severity of disease,—three weeks usually necessary.

Diet: milk, soup, and eggs. Tepid baths. Arsenic best of all drugs. *Burr*, ii. C-20.

Case of rickets and congenital syphilis in which a malarial attack caused violent choreic manifestations. Asaprol, 1 gramme, increased to 5 grammes daily. Most satisfactory result. *Moncorvo*, ii. C-20, 21.

Antipyrin in large doses—4, 8, or 15 grains, according to age, repeated two, three, five times a day; may be continued weeks without ill effect. *Comby*, v. A-26.

Antipyrin the only medicine from which cures may be confidently expected. Initial dose should not exceed 10 or 15 grains; cases should be carefully watched; dose slowly and cautiously increased. *McCall Anderson*, v. A-26.

CIRRHOSIS OF THE LIVER.

See Liver, Diseases of.

CLAUDICATION, CHARCOT'S INTERMITTENT.

Charcot's intermittent claudication a morbid alteration of vascular walls, of syphilitic origin. *Goldflam*, ii. C-27.

Form of cervical functional spasm showing itself after chill, rheumatoid pain, local irritation, emotion, or some general affection. Usually unilateral. *Féré*, ii. C-27.

Case of cramp of adductors of thigh in horseman whenever in saddle. *Pick*, ii. C-27.

COCAINE POISONING.

Chief and most frequent cause of death pulmonary embolism, due to swollen and paralyzed white corpuscles forming plugs in the contracted capillaries of the lung. *Maurel*, v. D-8.

Case in a girl; death forty minutes after taking 12 grains. Convulsions,—arms and legs most affected, face least; frothing from the mouth. Dose taken on an empty stomach. *G. M. Johnston*, v. D-8, 9.

Case in man; 8 or 9 grains taken. Constriction of throat and region of heart. Dysphagia; mental dullness. Resembled a bad case of chorea; movements slower, more regular. Lividity of lips. Amyl-nitrite gave immediate benefit. *Walker*, v. D-9.

Temporary poisoning in an adult from 20 minims, representing 5 grains, of the alkaloid injected subcutaneously. *Nason*, v. D-9.

Four fatal cases following the use of 4-per-cent. solution. *J. B. Mattison*, v. D-9.

Teaspoonful of a 20-per-cent. solution given, without fatal results, to an infant of 9 months. *Paraud*, v. D-9.

COLITIS. (See also Dysentery.)

PATHOLOGY. Characterized by mucoid discharge presenting appearance of ribbon-like or tubular false membrane. Infectious. Especially observed in women suffering from genital affections. *Touvenaint*, i. D-39.

May be connected with intestinal atony. *Germain Sée*, i. D-39.

Membranous enteritis rapidly produced in rabbits by intra-venous injection of diphtheria toxins. *Courmont and Doyon*, i. D-40.

[I do not think enough stress has been laid, by the writers quoted, upon the influence of the nervous system in the production of the disease. While mechanical and infectious causes may be active in some instances, in others the condition cannot be associated with any such factors. J. P. Crozer Griffith, Assoc. Ed., i. D-40.]

DIAGNOSIS. Anorexia; lassitude; gastric derangements; severe pains in colon; no fever. False membrane white or gray. *Coyle*, i. D-40.

Abdominal pain most prominent symptom, preceding evacuation some hours. Follows course of descending colon and sigmoid flexure. *Touvenaint*, i. D-40.

Case complicated with spleno-pneumonia with marked general symptoms. *Richardière*, i. D-40.

Nervous complications most varied, including hysterical, epileptic, and choreic symptoms. *Mathieu*, i. D-40, 41.

Seldom yields to treatment; worry brings on an attack; freedom from care almost essential to its cure. *Crouch*, i. D-41.

Prognosis not grave when attacks not intense, but disease greatly tends to produce cachexia. *Touvenaint*, i. D-41.

But little prospect of cure unless radical change in circumstances and surroundings possible. *Doane*, i. D-41.

TREATMENT. Rest in bed essential. Careful diet; symptomatic medication. Abdominal frictions with camphorated oil containing laudanum. If pain, opiates in small doses per mouth or in enemata. *Touvenaint*, i. D-41.

Cannabis Indica, 1½ to 4 grains daily. *Germain Sée*, i. D-41.

Copious hot solutions of nitrate of silver 1 to 1000 or 2000; in typhoid form, calomel. *Touvenaint*, i. D-41.

Injections of solution of ½ to 1 grain of bichloride of mercury to 1 pint of water. *Bartlett*, i. D-41, 42.

Salicylic acid, silver nitrate, or iodoform for medication by enemata. *Bacon*, i. D-42.

CONSTIPATION.

ETIOLOGY. In children careless and excessive eating cause of cæcal and intestinal food engorgement and headache; incapacity for work; paleness; capricious appetite, notwithstanding daily motion. *Simon*, i. D-47.

Fæcal impaction simulating enlarged prostate. Recovery after removal of large, hardened, calcified mass. *Manley*, i. D-48.

CONSTIPATION (continued).

DIAGNOSIS. Splashing sound when ⅗ to ⅘ pint of water injected as sign of atony or dilatation, while 1 to 1¼ necessary to obtain it in normal condition. *Boas*, i. D-47.

TREATMENT. Internal symptomatic treatment. Externally friction and massage of abdomen; continuous current. If cæcal or pericæcal congestion, iodine or small blisters over the region. Food to be reduced to fine pulp or *purée*. *Simon*, i. D-47.

Anal thickening, hæmorrhoids, ulcer, or fissure frequent causes of interference with remedial measures. *Beach*, i. D-48.

Forcible massage, with fingers held stiff, from cæcum to rectum, patient being on a hair mattress placed on a bench. *Schreiber*, i. D-48, 49.

Percussion and pounding of abdomen with inner border of fists in the direction of the ascending and descending colon. *Graham*, i. D-49.

Forcible dilatation of anus when contracted, irritable, and resisting to finger. *Romine*, i. D-49.

Forcible dilatation only indicated when fistula present. *Illoway*, i. D-49.

[I do not think the method is a proper or a safe one to be recommended in this general way. J. P. Crozer Griffith, Assoc. Ed., i. D-49.]

Case of supposed volvulus in which transportation over rough roads acted as curative agent. *Khalifa Rashd-ud-din*, i. D-49.

Hypnotic suggestion. *Luys*, i. D-50.

Thirteen cases; direct galvanization,—negative electrode introduced into the stomach and positive to lumbar region; 15 to 20 milliampères, five minutes three times a week; six definitely cured. *W. Brock*, v. B-24.

Same treatment with massage. *Gilles*, v. B-24.

Method of removing disagreeable taste of castor-oil: 5 drachms of the oil poured into a glass of milk; mixture heated, stirring with a spoon; a perfect emulsion obtained, which is flavored with syrup of orange-flower. *Klein*, v. A-51.

CONVULSIONS IN CHILDREN.

Small, medicated enemata. Wet wrappings of lower limbs; two handkerchiefs or two towels, according to age; folded twice and dipped into solution of cold water containing a small amount of vinegar, wrung out, then applied from toes to above knee, one and a half times around the limb. *Montenuis*, ii. C-28.

Solanum Carolinense; saturated tincture made of the crushed roots and leaves and added to a saturated tincture of the seed-balls, covered with dilute alcohol for ten or twelve days, then strained; 30 to 60 drops. *Goss*, v. A-147.

CORYZA. See Nose, Diseases of.

COW-POX. See Variola.

COXA VARA.

Disease of the bones manifesting itself by softening and by abnormal lengthening of neck by growth at upper epiphyseal line of femur. The consequence of functional excess and resulting disturbance in circulation. A disease of youth, occurring in tall, slender individuals obliged to perform work requiring exaggerated effort. Pains in hip intense at beginning, disappear as soon as deformity declares itself. Stiffness more and more marked, rotation of foot outward, until patient can no longer bend forward or sit down comfortably. In eight or twelve months surgical intervention necessary. *Kocher*, iii. G-43, 44, 45.

Case in which there was shortening of 2.5 centimetres of left leg from spine of ilium to malleolus. Distance between latter and trochanter same on both sides. Flexion of neck of femur at a right angle with bone. *Schnitzler*, iii. G-45.

Condition a frequent one, often confounded with arthritis. Cases of coxalgia vera, followed by recovery in young persons, were in reality arthritic. *Albert*, iii. G-45.

Bending of neck of femur, frequent in genu valgum and varum, a sort of compensation. *Hochenegg*, iii. G-45, 46.

Much more frequent than generally supposed. Rachitis constantly found among antecedents of patients; marks of former attacks of rachitis found. *Leusser*, iii. G-46.

Case in which deformed neck of femur presented characteristic lesions of rachitis. *Lauenstein*, iii. G-46.

Case characterized by 1½ inches shortening. Hip-joint opened as exploratory measure. Joint found healthy; neck of femur shortened and bent downward. *Curtis*, iii. G-46.

At Tübingen clinic nearly half as many cases of this deformity as of knock-knee. *Hofmeister*, iii. G-46.

Abnormal flexion of femoral neck, due in some cases to a previous coxitis, osteomyelitis, or epiphyseal separation. Other cases may be associated with genu valgum and flat-foot, may be rachitic, or deformity at femoral neck may be the only symptom. *Kirmisson*, iii. G-46, 47, 48.

CREOLIN, POISONING.

Case in a woman of 60. Coma; pallor; lips cyanotic. Pupils rather small, corneal reflex abolished. Pulse 112, medium strength, and regular. Respiration stertorous. Oral cavity showing superficial burn, brownish in color. Strong odor of creolin. Recovery. *Pinner*, v. D-10.

CYANIDES, POISONING.

Animals to which toxic doses of potassium cyanide given restored by immediate admin-

istration of potassium permanganate. In one animal dose ten times lethal failed to kill. Administration followed by no bad effects. *Kossa*, v. D-10, 11.

Permanganate useless when poison reached circulation. Nitric oxydulate of cobalt, a ½-per-cent. solution should be injected subcutaneously; same solution by mouth or passed into the stomach by means of a tube to neutralize any cyanide still present. Toxicity of cobalt salts depends only on their concentration. *Antal*, v. D-11.

CYANOSIS.

PATHOLOGY. Increase of corpuscles and iron attributed to difficult hæmatosis, through mingling of arterial and venous blood, and especially through stricture of the pulmonary artery, so frequent in these cases. *Marie*, i. B-35.

Same opinion apropos of a patient suffering from congenital cyanosis. *Hayem*, i. B-35.

Increase of blood-cells due to increased activity of hæmatopoietic system; color of the skin depends upon excessive number of globules. *Vaquez*, i. B-35.

Blue color of the skin is due to lack of oxygen. *Variot*, i. B-35.

Case in a boy 8 years old. Hæmoglobin 110 per cent.; number of red corpuscles and leucocytes, 8,470,000 and 12,000, respectively. *G. A. Gibson*, i. B-35.

Case showing 8,100,000 red corpuscles and 16,000 white corpuscles. Functions of corpuscles being lessened, wear and tear not so great and individual duration increased. *Carmichael*, i. B-36.

Two cases,—brother and sister; latter died at the age of 5 years; boy living, deaf, dumb, and suffering from otorrhœa and nystagmus. Red corpuscles, 9,000,000. *Eichhorst*, i. B-36.

Cases of congenital cyanosis sustaining views of Gibson, Marie, and Pengoldt as regards hyperglobulia. *Alberico Testi*, i. B-36.

DIAGNOSIS. Violet color of skin and mucous membranes, more or less pronounced, becoming temporarily exaggerated. Dyspnœa always present and follows these variations of the cyanosis. *Richardière*, i. B-36.

Variability shows itself in a marked degree from slightest emotion. In some cases cyanosis develops suddenly after a violent effort or a disease of the respiratory tract. *Variot and Chabry*, i. B-36.

Case in which disease declared itself at the age of about 30 years. Patient had suffered from dyspnœa from infancy. *Marie*, i. B-37.

Case in which cyanosis followed severe bronchitis at the age of 30. At autopsy foramen ovale found permeable. *Richardière*, i. B-37.

When due care is exercised, patients with congenital cyanosis may live to from 13 to 22 years; some known to reach 50 or 60 years. Exertion must be avoided; arsenic and phosphate of lime as tonics; digitalis. *Jules Simon*, i. B-37.

CYSTITIS.

PATHOLOGY. Two cases in which rheumatic origin was undeniable; articular rheumatism before, during, and after vesical affection. *Davezac*, i. E-37.

Preparation of a part of mucous membrane of bladder, showing gonococci in epithelium and connective tissue, submucous connective tissue, capillaries, and blood-vessels. Gonococci enter the blood through lymphatic tissue or by direct penetration, this explaining gonorrhœal endocarditis and other sequelæ. *Wertheim*, i. E-37.

Case of chronic gonorrhœal cystitis rapidly disappearing after influenza. *Goldberg*, i. E-38.

Cases in which irritation of bladder, cervical cystitis, and hæmaturia followed use of large doses of bicarbonate of soda in dyspepsia. *Mathieu*, i. E-38.

Cystitis is easily avoided if, before prescribing alkalines, acidity of urine measured, When very acid, soda not hurtful. Slightly acid, alkaline treatment might increase alkalinity and so allow development of microbes in bladder. *Hayem*, i. E-38.

TREATMENT. Bladder anæsthetized with cocaine solution and long strip of boric gradually introduced through urethra until mass in bladder represents the size of an orange, leaving two ends outside as drainage for urine; left in several days. Painful at first. No return of symptoms in two females in whom method tried. *Faulds*, i. E-38.

Idiopathic, toxic, and gonorrhœal, internal remedies; exclusion of local surgical measures except in retention. After acute stage, antiseptic and astringent washes. When caused by general bacterial infection, treatment of general diathesis; vesical washes of astringents; iodoform should be avoided; removal of primary cause important. *J. Englisch*, iii. E-33.

Cantharidin in 56 cases. Recommended: cantharidin, $\frac{1}{300}$ grain; alcohol, 15 minims; distilled water, enough to make 3¼ fluid-ounces. A teaspoonful three or four times a day. *Freudenberg*, iii. E-33, 34.

Washing bladder with 4-per-cent. solution of nosophen clears urine in a few days. *Ferd. C. Valentine*, v. A-113.

After operation the residual urine in bladder decomposes and gives rise to cystitis while patient lying on the back. Cases in which cystitis supervened three days after operation. In appropriate cases recumbent posture should be changed to sitting posture. If urine offensive, two drugs particularly useful, salol and betol; latter especially, 5

CYSTITIS (continued).
grains three times a day. *W. H. Bennett*, ii. F-111, 112.

Large percentage of female vesical symptoms can be readily relieved by dilatation of the urethra. *J. M. Baldy*, ii. F-112.

Cystalgia in the female may be relieved by dilatation of the urethra. *L. Bleynie*, ii. F-112, 113.

DENTITION.

Reflex irritation of dentition may cause restlessness, disturbances of digestion, etc., but not convulsions, brain disorders, diarrhœa, or bronchitis. *Swaita*, ii. I-12.

Reflex convulsions from dentition possible, though rare. *Arnstein*, ii. I-12.

Objection to the practice of lancing the gums of infants. When the gums are red and irritated, some other cause than dentition is usually present. *J. Lewis Smith*, ii. I-12.

Erosion of teeth primarily caused by error in development during the suckling period. In two cases of early decay of the teeth there had been very injudicious artificial feeding. *Kingston Barton*, ii. I-12.

DERMATITIS HERPETIFORMIS.

Post-mortem in a case. 1. Absence of bacterial specificity in contents of bullæ. 2. Coincidence noted by Brocq of lesions of nervous system. 3. Co-existence of bullous lesions and nephritis. *Gastou*, iv. A-11.

Lesions in herpes gestationis. Identity of two forms indisputably established by the presence, in both, of cells having special microchemical reaction, coming from the blood-vessels of the derma and eliminated by the epidermis, and by presence in the blood of eosinophilous cells. *Leredde and Perrin*, iv. A-12.

Two cases in two sisters living apart, interesting as showing family tendency, liability to onset in a predisposed person on change of climate, and general intractability of the complaint. *J. J. Mooney*, iv. A-12.

DERMATITIS REPENS.

Very severe and persistent case. Dermatitis repens best described as a spreading dermatitis denuding the epithelium by a slow process of disintegration accompanied by irregular pustulation, discharging a serous or sero-purulent fluid, spreading with an undermined and generally well-defined edge. *Stowers*, iv. A-12.

Case showing outward effect of resorcin applications: a single application sufficient to set up a violent dermatitis. *R. W. Taylor*, iv. A-12.

[These artificial eruptions provoked by resorcin are relatively frequent, and this substance should only be used with much precaution, beginning with almost infinitesimal doses and suspending its use at the slightest irritation. L. Brocq, Assoc. Ed., iv. A-13.]

DIABETES MELLITUS.

PATHOLOGY. Nine grave cases examined for pentose, with negative results. *Salkowski*, i. F-1.

[This is readily explained by the fact that the procedure was imperfect. R. Lépine, Assoc. Ed., i. F-1.]

A mixture of dextrosazone and pentosazone found in the urine of 76 out of 80 cases of diabetes. In 64 reaction positive, in remaining 12 cases doubtful. *Külz and Vogel*, i. F-1, 2.

Osazones of maltose and isomaltose obtained from the liver of the ox; glycogen of liver therefore does not only produce glucose. *Külz and Vogel*, i. F-2.

Melting-point of phenylglucosazone between 399.2° and 401° F.; therefore certain that sugar of blood is glucose. *Miura*, i. F-2.

Study of 1000 specimens of normal and pathological urine, showing that, if very large quantities of urine are used, even normal urines may show traces of dextrose. Phenylhydrazin test in doubtful cases prevents possibility of a mistake. O-nitrophenylpropionic-acid test not very reliable. *Jolles*, i. F-2.

Phloridzin diabetes appears more intense when liver contains no glycogen. *Pick*, i. F-3.

Extirpation of liver prevents ablation of pancreas to cause diabetes in the dog. *Marcuse*, i. F-3.

Glycogen disappears from liver after section of the pneumogastrics. *Bernard, Butte*, i. F-3.

Glycogen does exist in blood-corpuscles, and not in plasma. *Dastre*, i. F-3, 4.

Staining by iodine not characteristic of glycogen; myelin of nerves and other substances give same coloration. *Huppert*, i. F-4.

Glycogen an element of the blood, apparently belonging to leucocytes. *Huppert and Czerny*, i. F-4.

Fact that glycogen exists in very small quantity in muscle tetanized either directly or through intermediary of nerve confirmed. Sugar itself the most important source of heat and effort. Under faradic excitation of muscle or nerve notable loss of sugar in muscular venous blood; more sugar in muscular venous blood than in arterial blood. *Seegen*, i. F-4, 5.

Theory of Pavy—that in diabetes there is weakening of intestinal epithelium and of liver, which in the normal state prevents entrance into economy of too great quantity of sugar—does not explain most cases. *Paton*, i. F-5.

Under fresh thyroid-gland diet animals

are affected with tachycardia, considerable emaciation, polyphagia, polydipsia, temporary glycosuria. *Georgiewski*, i. F-5.

Case of myxœdema in which ingestion of thyroid tablets caused glycosuria. *Ewald*, i. F-6.

Marked polyuria with glycosuria produced in animals by caffeine-sulphonic acid. *Jacoby*, i. F-6.

Case in favor of opinion that phloridzin glycosuria is altogether distinct, pathogenically, from pancreatic diabetes. *Lépine*, i. F-6, 7.

Phloridzin glycosuria may be considerable without causing notable loss of weight. Polyuria may be attributed to diuretic action of urea, phosphates, and chlorides upon kidney. The liver has no inhibitory effect on diabetic action of phloridzin. Phloridzin has a much weaker action when ingested than when injected under the skin. *Coolen*, i. F-7.

Kidneys do not simply serve as filter to eliminate sugar; active production of sugar in them probable. *Levene*, i. F-7, 8, 9.

Chloralamid, 1½ to 3 drachms per day, frequently causes glycosuria. *Manchot*, i. F-9.

Alimentary glycosuria in several cases of hysteria, permitting to detect simulation; in acute poisoning by phosphorus, and in icterus. *Von Jaksch*, i. F-9.

Frequency of saccharosuria in normal state when quantity of saccharose exceeds 50 grammes confirmed. *Linossier and Roque*, i. F-10.

Action of lead upon hepatic cells not only cause of lead colic, alcoholism also a factor. *Brunelli*, i. F-10, 11.

Case of acromegalia passing 10 to 20 quarts daily of clear urine containing 1½ ounces of sugar per quart. *Marinesco*, i. F-11.

New method to demonstrate absence of sugar from normal urine and to make quantitative estimation (see text). *Geo. Johnson*, i. E-58.

Glucose not a normal constituent of the urine; high specific gravity does not always indicate the presence of sugar; not infrequently concentrated urines with a specific gravity of 1028 to 1032 contain no sugar; small quantities of sugar influence the specific gravity very little. Trommer's and Worm-Mueller's test confusing. In Fehling-Wendriner test results did not always agree. Hoppe-Seyler's test with alphanitro-phenyl-propionic acid not adapted as a single test. Its delicacy lies at about 0.4 per cent. *Jolles*, i. E-60, 61.

Method for the detection and estimation of sugar; great reliability, extreme delicacy, and requires the employment of a minimum quantity of urine (see text). *A. R. Elliot*, i. E-61.

New methods recommended by their authors. *A. H. Allen*, *Williamson*, *Créquy*, i. E-62, 63.

Study of polarization of saccharine urine in two hundred and thirty cases.

Urine containing albumin or sugar is lævogyrate in proportion to amount of the abnormal ingredient. Greatest rotation to the right obtained in specimen from a case of icterus. *Pansini*, i. E-58.

Two new cases of pentosuria; urine containing sugar, but not being fermented by yeast. *Salkowsky*, i. E-74.

Pentose found in urine sent to him to be tested for glucose. *Scognamiglio*, i. E-74.

Pentosuria observed in patients seemingly affected with diabetes. *Blumenthal*, i. E-74.

ETIOLOGY. Appears more frequently in March, April, July, and November; increased mortality in winter, but not in relation with average temperature. *Davis*, i. F-11.

In 607 individuals engaged in manual labor or requiring great muscular and respiratory activity, no sugar in any case; in 100 individuals engaged in intense intellectual work, sugar in 10. *Worms*, i. F-11.

In 200 cases, 4 intemperate, 107 temperate, 89 total abstainers, 69 opium *habitués*. *Mitra*, i. F-11.

One-tenth mortality of Calcutta due to diabetes or its consequences. Theory of excess of starch in food not supported. Jains, Sadhus, Jagses, Chowbays, who lived upon sweets, do not show disease. Contagiousness suspected. *Bose*, i. F-11, 12.

INFANTILE DIABETES. Both sexes seem affected in equal proportion; most frequently observed about age of 5 years. Causes: traumatism in 11 cases, dentition, chill, excesses, rapid growth, insufficient food, violent emotion, sorrow. *Wegeli*, i. F-12.

5½ quarts of urine, and losing 11 ounces of glucose and 4¾ drachms of urea in twenty-four hours. Greatly improved under bromide of potassium, sodium arseniate, and strict diet, but finally fatal. *Comby*, i. F-12, 13.

Case in child of 4½ years, following influenza of three years' standing. Opium useless. *Broadbent*, i. F-13.

Case in a child 18 months old. No disease or likely cause. A fall of 1½ feet possible origin. *Jaworski*, i. F-13.

Case in a child of 2½ years. Presence of a great deal of sugar hardly ascertained when death from diabetic coma occurred. Utility of examining urine, even in children, manifest. *Cnopf*, i. F-13, 14.

TRAUMATIC DIABETES. Twenty cases of glycosuria in 212 cases of traumatism of the head. In 11 injury to right side of head. *Higgins and Ogden*, i. F-14.

May be acute or chronic, temporary or permanent; in latter form may cause death

DIABETES MELLITUS (continued).

in from one to five years. Little hope of complete recovery. *Asher*, i. F-15.

The earlier diabetic condition observed after accident and the greater evidence that symptoms not present before, the greater the probability of a connection between diabetes and the injury. *Ebstein*, i. F-15, 16.

Diabetes mellitus due to syphilis probably more common than hitherto suspected and coinciding with tertiary symptoms. *Charnaux*, i. F-16.

PANCREATIC DIABETES. Extirpation of pancreas of 2 dogs, leaving $\frac{1}{9}$ to $\frac{1}{5}$ of organ; animals became diabetic; one 4 and other 13 months after. *Sandmeyer*, i. F-16, 17.

Eels survived operation 7 to 12 days; 7 out of 11 showed no sugar in urine; 2 of them did. Former perhaps retained pancreatic remnants. *Caparelli*, i. F-17.

Extirpation of pancreas of 19 ducks and 5 carnivorous birds; 4 ducks showed slight glycosuria; 3 carnivorous birds manifestly glycosuric until death. *Weintraud*, i. F-17.

Acute diabetes due to cancer of pancreas. Symptoms on admission simulated those of cirrhosis of liver. *Dreschfeld*, i. F-17, 18.

Coincidence of disease of pancreas and diabetes occurs more frequently than diabetes alone or pancreatic disease alone, and oftener than these two combined. Commonest disease of pancreas found in diabetes is an atrophy which differs from atrophy as the result of diabetes or of cachexias; comparable with certain forms of contracted kidney. *Hansemann*, i. F-18, 19.

In case due to influenza liver weighed seven pounds; hypertrophic cirrhosis with pigmentation throughout hepatic cells, portal spaces, biliary ducts and vessels. Pancreas large and striated; glands dissociated by fibrous tissue; cells infiltrated with pigment. *De Massary*, i. F-19, 20.

PATHOGENESIS. Glycolytic ferment produced by treating saliva or any solution of amylate, or pancreas itself, by sulphuric acid diluted to 1 to 1000. *Lépine*, i. F-20.

Glycolysis takes place in oxalated as well as defibrinated blood; shown by Lépine that 6-per-cent. solution of sodium chloride in contact with blood-corpuscles has glycolytic power; organs have not anywhere near as great glycolytic power as the blood. *Spitzer*, i. F-20.

Bulbo-hepatic diabetes independent of the pancreas. *Thiroloix*, i. F-22.

Watery extract of dejections of diabetic patients cause toxic symptoms when injected under the skin of animals. Pancreas, an antitoxic organ, destined to destroy certain toxic substances formed in intestine. When produced in too great quantity or pancreas insufficient, toxicity of dejections increases. *Töpfer*, i. F-22, 23.

[This theory has already been proposed by de Dominicis and is absolutely untenable. R. Lépine, Assoc. Ed., i. F-23.]

No close relation between percentage of sugar in the blood and urine. That more sugar is excreted by urine on a certain day than on others does not depend on fact that amount in blood has reached a certain quantity, but on other complex conditions. Administration of a diuretic diminishes hyperglycæmia and retards decrease of glycosuria. *Lépine*, i. F-23, 24.

NUTRITION. In healthy subjects 5 per cent. of nitrogenous material and $3\frac{1}{2}$ per cent. of fatty matters lost by fæces. In diabetic subjects average loss of nitrogenous substances $7\frac{1}{2}$ per cent. greater, while that of fatty matters, on the average, about the same; considerable individual variations. The diabetic has no more need of caloric than a healthy man. *Pautz*, i. F-24.

Case in which suppression of carbohydrates from food and one day of absolute fast caused sugar to permanently disappear from urine. *Weintraud*, i. F-25.

PATHOLOGY. Frequency of cramps in the calves in diabetics. Disease frequently begins in form of an obstinate gastric catarrh; examination of urine for sugar in all patients suffering from rebellious catarrh of stomach, recurring in spite of all treatment desirable. *Jacobson*, i. F-25.

Modification of Ehrlich's method of staining cover-glass preparations of blood with eosin and methyl-blue. *Bremer*, i. F-25, 26.

In pancreatic diabetes albuminuria quite exceptional; in traumatic diabetes it is a little more frequent; albuminuria by far most frequently met with in diabetes with obesity. In grave form of albuminuria of diabetes well-marked nephritis always found at autopsy; in benign form sometimes but slight nephritic changes found; more rarely no changes detected in the kidneys. Replacement of sugar by albumin always an extremely grave sign, but case may not immediately terminate fatally. *Jacobson*, i. F-26, 27, 28.

Case of *diabète bronzé*, of which only 9 certain cases, all by French observers, and 2 doubtful ones have been published. *Marie*, i. F-28.

Knee-reflex of no prognostic importance in diabetes. In 33 mild cases absent 12 times; in 6 severe cases absent but once. In 170 cases absent 23 times. *Grube*, i. F-29.

Case of diabetic neuritis with central scotoma. At autopsy zone of degeneration in optic nerve. *Fraser and Bruce*, i. F-29.

Five cases of diabetic angina pectoris; in one sudden death during attack. *Vergely*, i. F-29, 30.

Case of otitis media diabetica due to micro-organisms, diabetes having lowered vitality of tissues. Primary in tympanic

cavity and secondarily a mastoiditis. In mastoid disease urine should always be examined for sugar. *Davidsohn*, i. F-30.

In case of severe diabetes articular and muscular pains with fever, swelling of joints, œdema of skin, and multiple furuncles; in pus, urine, and exudate staphylococcus pyrogenes aureus found. *Rovere*, i. F-30.

All forms of fungi observed in a case of diabetes. Diabetes favorable to development of various fungi. *Ernst*, i. F-30.

In healthy persons submitted to diet from which carbohydrates are absolutely excluded quantity of acetone increases progressively for seven or eight days, then becomes stationary at from $\frac{1}{3}$ to $\frac{1}{2}$ grain. Diabetes complicated by acetonuria rather rapid in its evolution and terminates in death from twelve to twenty months in cases in which there is no gangrene. Treatment: hyperalimentation (carbohydrates in small quantities, albuminoids in not too great abundance, fat, and alcohol); rest. *Hirschfeld*, i. F-31 to 33.

In twenty-one cases of diabetic coma all patients eliminated large quantities of acid; but a comatose condition may be due to increased destruction of nitrogenous material in other maladies, and administration of alkalies is without effect; hence, coma not due to acid intoxication. As means of restricting nitrogenous destruction 8 ounces of fat daily; milk or levulose if disgust occur. *Klemperer*, i. F-33, 34.

Case of diabetic coma without oxybutyric acid. *Rumpf*, i. F-34.

DIAGNOSIS AND PROGNOSIS. Adiposity frequently an early symptom of diabetes. In 15 adipose individuals no trace of sugar found when food containing much carbohydrate material administered; when pure grape-sugar taken, glycosuria noted in 4 cases. *Von Noorden*, i. F-34.

Possibility of mistaking diabetes for cardiac or Bright's disease. Case in which all appearances of cardiac disease in stage of asystole present; no appreciable heart trouble and no albuminuria. Diabetes confirmed by analysis. Post-mortem showed integrity of heart. *Galliard*, i. F-34.

Pathognomonic sign of either diabetes or albuminuria: Slight irritation of throat,—some difficulty of deglutition; sensation of swelling; constriction of fauces. Soft palate, pillars, and posterior wall of pharynx red and swollen; viscid layer of mucus. *Garel*, i. F-35.

Three cases in which diagnosis doubtful between tabes with glycosuria and diabetes. *Grube*, i. F-35.

Gravity of prognosis of diabetes in children. Of 108 cases, 64 per cent. terminated fatally. Prognosis graver in proportion as children are younger. *Wegeli*, i. F-35.

In adults proportion of grave cases does not exceed 5 per 1000. *Worms*, i. F-35.

TREATMENT. Case in which pancreas removed from freshly-killed calf and three fragments inserted under skin of abdomen and chest. Two days later death from coma. At autopsy grafts appeared to have taken perfectly. *Williams*, i. F-35.

Treatment by fresh pancreas or pancreas extracts all failures. *Goldscheider*, *Williams*, *Amiotti*, i. F-35, 36.

[Negative results not surprising: glycolytic ferment exists in but small quantities in pancreas; formed there, but immediately removed by circulation. Trypsin not found in fresh pancreas; requires several hours for its development at expense of a zymogen. I have endeavored to determine zymogen which gives rise to glycolytic ferment and have succeeded (see PATHOGENY). Practical application of glycolytic ferment; in four cases result quite marked, although ferment, obtained by a method which requires to be perfected, is not of great strength. Agent expected to respond only to one indication, diminished glycolysis, which I have noted in diabetic patients; there are other essential elements of the disease which must also be treated if good results be desired. R. LÉPINE, Assoc. Ed., i. F-35, 36.]

Beer-yeast in doses of $1\frac{1}{2}$ ounces at the three principal meals; fetid diarrhœa appears on second day. General condition improves. *Cassäet*, i. F-36, 37.

In doses of 3 tablespoonfuls daily in a little beer at meal-time well borne. Fresh yeast should always be employed. Improvement remained stationary. *Wilmaers*, i. F-37.

Nitrate of uranium in small doses causes diminution in quantity of urine and sugar. Violent poison; prolonged use inadvisable. *West*, i. F-37.

Guaiacol in doses of 6 to 10 drops, three times daily, in tablespoonful of milk or codliver-oil. Well tolerated; manifest improvement. *Clemens*, i. F-37.

Mixture of phosphate and carbonate of lime. Decided improvement in all symptoms. *Grube*, i. F-37, 38.

DIETETIC TREATMENT. Small quantity of alcohol (1 to $2\frac{1}{4}$ ounces per diem) has no ill effect. Only necessary in severe cases to ward off falling off strength and development of tuberculosis. *Hirschfeld*, i. F-38.

Diabetic biscuit consisting of combination of aleuronat and cocoa-nut powder. *Williamson*, i. F-38, 39.

The kernel of the pea-nut as food for diabetic patients. Contains 14 per cent. carbohydrates, 29 per cent. proteids, 49 per cent. of fat. *Stern*, i. F-39, 40.

Effect often seen with ordinary carbohydrates—of increasing output of sugar beyond the extra quantity given—not ob-

DIABETES MELLITUS (continued).
served with levulose in eight cases. *White*, i. F-40.

Levulose can be given in moderate quantities in slight forms of diabetes, without injurious results as regards sugar excretion, urine, etc. Utilized in the system, though dextrose and cane-sugar excreted. *Grube*, i. F-40.

Case of chronic diabetes can utilize 1½ ounces or more of levulose daily. *Haycraft*, i. F-40, 41.

Three and one-fourth ounces led to more or less diuresis in five cases and to increased excretion of glucose. *Palma*, i. F-40.

Increased excretion of glucose after administration of levulose. *Bohland*, i. F-41.

[Levulose may generally be given in small doses to patients suffering from mild diabetes; but if small daily dose be exceeded, excretion of sugar increased without benefit to patient. R. LÉPINE, Assoc. Ed., i. F-41.

TREATMENT OF COMPLICATIONS. Form of crisis which appears spontaneously without prodromes while patient feeling relatively well. Violent abdominal pain, flatulence, eructation. Cramps in the legs, dryness of the mouth, etc. Purgative water or oil enema; hot compresses to the abdomen. Medicines given by the mouth are vomited. *Grube*, i. F-41.

No minor operations should be done; only urgency warrants surgical intervention. Essential condition asepsis; antiseptics frequently badly borne. *Legendre*, i. F-41.

In treatment of albuminuria, maintenance of patient's strength of more importance than loss of albumin or sugar. In slight form treatment as in ordinary diabetes. Strong alcoholic drinks prohibited; light wines or beer allowed. If patient arthritic, alkalies, lithium salts, arsenic. Moderate exercise; massage; douche. In grave forms milk diet to be avoided,—glycosuria and polyuria would be increased. Ordinary treatment of diabetes also to be avoided; nitrogenous substances injurious in Bright's disease; risk of uræmic symptoms. Mixed diet recommended. Alcohol forbidden. Sometimes iodides and phosphate of lime of service. Opium, belladonna, antipyrin. When albumin replaces sugar, case may be treated as one of Bright's disease. *Jacobson*, i. F-42.

New case of saline infusion for diabetic coma. Improvement but temporary. *Oliver*, i. F-42.

Absolute failure of alkaline medication in twenty-one cases of comatose diabetes. *Klemperer*, i. F-42.

DIARRHŒA.

Fatal case in which the Finkler-Prior bacillus was found in the stools. *Ruete and Enoch*, i. D-35.

TREATMENT. If quantity of milk needed to maintain strength too great to render its use practicable, it may be reduced in bulk by evaporation, over a spirit-lamp, stirring continuously after it gets warm and until it has become cold, to preserve good taste. *Thin*, i. D-35, 36.

In chronic forms especially rest in bed of paramount importance, with gentle massage of legs and arms and liquid diet. If milk given alone, stools to be inspected to ascertain that it is digested. *Carpenter*, i. D-36.

Injections of sufficient size to wash out sigmoid flexure and colon not sufficiently resorted to. When medication necessary, best results obtained where 10 to 30 grains of sulphocarbolate of zinc were dissolved in the 2 or 3 quarts of water used. Liquids to be allowed to trickle into bowel rather than forced in. *Hare*, i. D-36.

[This editorial is a timely one. The writer is undoubtedly correct in stating that sufficient attention is not given by practitioners to the employment of injections in the treatment of diarrhœa. J. P. CROZER GRIFFITH, Assoc. Ed., i. D-37.]

CHRONIC. In markedly emaciated patients large enemata. To relieve tenesmus small rectal injection of 1 to 2 ounces of 5 grains to the ounce of iodoform and sweet-oil emulsion. *Hare*, i. D-36, 37.

"MORNING."

PATHOLOGY. Serous exudation from intestinal blood-vessels with morbid change in functions of glandular elements. *Delafield*, i. D-34.

Evidences of malnutrition and defective hæmatosis; complexion sallow. Sleep disturbed; amnesia; aprosexia. Gastric disorders frequent. Food non-peptonized and fats uninfluenced by pancreas; deficient peristalsis. *Wise*, i. D-34, 35.

Chief cause,—indigestion aggravated by anxiety. *Zwisohn*, i. D-35.

TREATMENT. Dry, inland climate; careful dietary; occasional lavage. Arsenic, quinine, ipecac, belladonna, Cannabis Indica, occasionally useful. Best results from castor-oil, 5 to 10 drops. *Delafield*, i. D-35.

Beta-naphthol to arrest flow. Draught of aperient saline before breakfast to insure flushing and evacuation of bowel. For advanced cases, Allegheny Springs and Saratoga in U. S. or Vichy and Kissingen in Europe. *Wise*, i. D-35.

Dietetic treatment important. *Zwisohn*, i. D-35.

DIARRHŒA, INFANTILE. (See also DIETETICS OF INFANCY.)

Local lesions and systemic effects the results of micro-organisms and their toxic products acting locally or by absorption into the system. *Engelmann*, ii. I-23.

TREATMENT. Intestinal lavage with

warm, boiled water, Vichy water being added. Infant lying on the side, first the right, then the left; tube inserted 15 centimetres and water slowly introduced. If discharges fetid, calomel; also 1 drop of laudanum every hour. If obstinate vomiting, lavage of stomach and egg-albumen in water given. *Grancher*, ii. I-23.

Bismuth and lactic-acid treatment efficient only in children upward of 2 years of age. *Para*, ii. I-23.

To cause evacuation of irritating substances, enemata, combined with sitz-baths, 54° to 72° F., of one to five minutes' duration. *Buxbaum*, v. A-179.

Intestinal irrigation and stomach-washing, hydrozone for the latter, a tablespoonful to a pint of water. For intestinal irrigation 2 ounces of hydrozone to a quart of cold water, repeated every two hours if necessary. Morphia and strychnia subcutaneously if required. No antipyretics. If fever not reduced, entire surface of body should be sponged off with alcohol. *Blech*, ii. I-23.

Most desirable position for injection is the dorsal, with the thighs flexed and the pelvis elevated and a pressure of not more than one to one and one-half metres. In 200 patients experimented upon ileo-cæcal valve offered effectual resistance in only 27. *Sokolow*, ii. I-24.

Tannigen as a substitute for tannin. Insoluble in stomach; dissolves slowly in the intestine. Alkaline secretions of intestine decompose it into potassium acetate and tannin. Used in small doses. *Dreus*, ii. I-24.

[Tannigen is also highly recommended by Professor Escherich in the *Therapeutische Wochenschrift* of March 9, 1896. He states that, to obtain the best results, it must be prescribed in large doses,—4 grains to children under 1½ years old and 7½ grains to older children, four to six times daily, the powder being mixed with the food. Injurious after-effects were never noted. Ed.]

Papain a digestive ferment of great value; preserves its powers for a long time; acts with certainty and when given in small doses. *Lasnière*, v. A-119, 120.

Papain suspended in smallest possible quantity of water, given immediately after meal, repeated two or three times at from fifteen to thirty minutes; doses: 4, 5, or 7 grains in adults. *A. Hirsch*, v. A-120.

Acetanilid combined with starch-powder with small amount of sodium bicarbonate. *Wells*, v. A-5.

Chemically-pure glycerin in water or milk, daily doses varying from 10 to 30 minims to an infant, from 80 to 100 minims to an adult. Daily dose should be given in four equal parts. [With iodoform as adjunct may prove toxic. Ed.] *Aubeau*, v. A 77.

[Solomon Solis-Cohen, in the *Polyclinic* of May 30, 1896, lays stress upon the fact that, no matter what kind of food is administered, a child will be much better off if all food be suspended for at least twenty-four hours, and that even the best adapted food, perfectly sterile at the time of administration, will decompose when placed in a septic alimentary tract. Sterilized milk may thus prove noxious to the infant. The withholding of milk of any kind—sterilized, prepared, predigested—sometimes entirely modifies the aspect of a case. He states that weak barley-water may sometimes be given with advantage under these circumstances, not so much as a nutrient, but to allay the child's craving for fluid and to satisfy the maternal desire to administer food. It should be given in small quantities and at sufficiently long intervals. Ed.]

DIETETICS; ALIMENTATION.

Meat-bouillon appears to favor action of gastric juice upon foods taken at the same time. *Kogminykh*, v. A-167.

Freshly-expressed meat-juice, as a food in disease, recommended. Bloody taste may be disguised by adding a little brandy and extract of vanilla with sugar; upon freezing it an agreeable ice-cream is formed. In this manner no difficulty in giving a patient at least 6½ ounces of juice. *Von Ziemssen*, v. A-167.

In dogs, fats injected under the skin absorbed and assimilated; animals markedly increased in weight. Fat about viscera about the same composition as that of a dog fed in the ordinary way. *Leube*, v. A-168.

Experiments to elucidate influence of milk-diet on intestinal putrefaction: 1. Putrefaction invariably lowered. 2. Leucomaines in urine decrease markedly. *Skorodumoff*, v. A-168.

When milk badly digested, often because chemical operations within stomach indicate an excess of pepsin. In this case kephir gives good results. *Gaucher and Gallois*, v. A-169.

Sugars, fats, peptones, and gelatin considerably increase number of heart-beats. Respiration only affected by gelatin. Cane-sugar and glucose in large doses act directly on the myocardium. *Pugliese*, v. A-169.

Cane-sugar a natural food; dextrose exceptionally so. Latter undergoes lactic fermentation much more readily in the stomach and duodenum than former; interferes more with salivary and gastric digestion. *Bartley*, v. A-169.

Malt-extract contains not starch, but dextrin, soluble starch and maltose, small quantities of albumin, gum, and inorganic salts; portion of diastase not consumed by starch destroyed in the process of evaporation. Would be well to have a diastase, pure and simple,—one which can be dis-

DIETETICS; ALIMENTATION (continued).

pensed in pills, tablets, or powders. Possibility shown by experimental preparation of diastase, 1 part of which dissolves 50,000 parts of starch. *John M. Francis*, v. A-170.

Leguminous food very readily dissolved and digested in the alimentary canal, even in the absence of the usual ferments. Valuable as aliment in such cases and also in diabetes and obesity. *Bovet*, v. A-170.

Somatose an alimentary substance containing, besides water and salts, 78 per cent. of albumose and only 2.4 per cent. of peptone. Yellow powder without smell or flavor; soluble in water. Used in hypodermic injections of $2\frac{1}{2}$ drachms. 0.5-per-cent. solution in salt water at 75° F. or daily doses of $3\frac{1}{4}$ to 5 drachms for digestive diseases in which but little peptone desirable. *Goldmann*, v. A-171.

Special utility of somatose in irritation of gastro-intestinal mucous membrane, gastro-enteritis, etc. *Gerdes and Susewind*, v. A-171.

Cases of ulcer of the stomach and of cancer of the stomach obtain great benefit from the use of somatose. *Hans Traube*, v. A-172.

Case of severe syphilitic and mercurial cachexia in which ten pounds in weight were gained during administration of somatose for a period of four weeks. *Eichhoff*, v. A-172.

Somatose recommended in the general alimentation of the sick. *G. Taylor Stewart*, v. A-172.

Apple-cider essentially diuretic; exercises favorable influence on nutrition; can be used at meals by dyspeptics. Well-made cider an efficient corrective of uric-acid diathesis. *Carrion and Cautru*, v. A-172.

Weak cider free from pathogenic microbes, well tolerated by the stomach, a prophylactic of the uric-acid diathesis, intermittent fever, vomiting, and as a tonic in chlorosis and anæmia. *F. Aury*, v. A-172.

RECTAL ALIMENTATION. Scarlet rash after enemata in a girl, 20 years old, tends to confirm view of Suckling that rash is due to absorption of fæcal matter softened by enema. Did not recur when fluid injected after bowel emptied of fæces. *G. E. Hale*, v. A-173.

Question as to whether absorption takes place in the large or small intestine still open. But physiological observation shows that ileo-cæcal valve is permeable and that it is only necessary for nutritive substances to penetrate a certain distance into the ileum to meet with digestive juices which can change them and render them absorbable. *Lépine*, v. A-173.

Egg-albumen absorbed and assimilated by mucous membrane of large intestine. Useful combination: 6 eggs mixed with $1\frac{1}{2}$ drachms of salt and $6\frac{1}{2}$ fluidounces of a 15-per-cent. solution of HCl, containing $1\frac{1}{4}$ drachms of pepsin; mixture kept ten hours in a warm chamber. Nutrient enemata twice daily. (See text.) *G. Singer*, v. A-173.

DIETETICS OF INFANCY.

GENERAL CONSIDERATIONS. Undigested cow-casein a good soil for growth of micro-organisms. Intestinal antisepsis chiefly depends on good digestion and absorption of intestinal contents. Cæcum and large intestine the chief site for pathological processes in deranged digestion; hence value of intestinal irrigation. *Biedert*, ii. I-1.

Cows' milk the most satisfactory substitute for the natural food of infants. With it a substance sufficiently resembling breast-milk can be prepared: ℞ Milk, 1 ounce; cream (skimmed, 16 per cent. fat) 2 ounces; or cream (centrifugal, 20 per cent. fat) $1\frac{1}{2}$ ounces; soda-bicarbonate solution, $\frac{1}{2}$ ounce; milk-sugar, $3\frac{3}{8}$ drachms; water, to make 8 ounces. Enough to last twenty-four hours should be made in the morning, poured in bottles, and latter placed in sterilizer and heated to desired temperature. *Crozer Griffith*, ii. I-1.

During first week, after milk sterilized, only a small percentage of fat rises to the surface; in three or four weeks increase of 30 to 40 per cent. A butter free from germs may be obtained in the same manner. *Renk*, ii. I-2.

Freshly-separated diluted cows' cream as an infant food. *Gärtner*, ii. I-2.

Precedence should be given to human milk when obtainable. Starch should be avoided for young infants. When constipation present, often due to deficiency of fat in the food. *Ward*, ii. I-2.

Diet for nursing mothers: Eggs, 4 ounces; bread, 24 ounces; butter, 2 ounces; beef, 2 ounces; milk, 32 ounces; mutton, 8 ounces; potatoes, 12 ounces; green vegetables, 6 ounces; sugar, 1 ounce; total, 95 ounces. *Platt*, ii. I-2.

Experiment showing that provision is made for the digestion of starchy foods by children under 6 months of age. If starchy food employed, not more than 7 per cent. should be used. *Heubner*, ii. I-3.

Artificial maternal milk, resembling closely the natural product in appearance and in results. (See text.) *Boissard*, ii. I-3.

Analyses of the milk of twenty-five nursing women. Albumin diminished as lactation progressed; sugar increased; fat decreased at first, but increased at the end of the year. *Johannessen*, ii. I-3.

Analysis of 525 cases at Freiburg Maternity. Only half able to nurse their babies during the first two weeks. In 99 no milk secreted. Imperfect nipples in 49; only 33 suckled

freely without any complications. *Wiedow*, ii. I-3.

Mineral matter in human milk: Unconsumed carbon, 0.71 per cent.; calcium phosphate, 23.43 per cent.; calcium silicate, 1.35 per cent.; calcium oxide, 2.54 per cent.; magnesium oxide, 0.96 per cent.; alumina, 0.40 per cent. *Rotch*, ii. I-4.

Milk contains citric acid as an alkaline citrate, which helps to hold in solution the phosphate of lime which it contains. Solution due to the important rôle which lactose plays in the presence of alkaline citrates. *Vaudin*, ii. I-4.

Proportion of iron very similar in human and in cows' milk; slight excess of the oxide in latter. *Anselm*, ii. I-4.

Volume of gases in milk: Oxygen, 1.5 per cent.; carbonic acid, 2.5 per cent.; nitrogen, 3.5 per cent. *Kultz*, ii. I-5.

Sterilization of animal milk rarely effected with completeness and certainty. *Gravière*, ii. I-5.

Product of a large dairy in Brunswick is constant and even in quality. Flaack's process of sterilization used. (See text.) *Blasius and Beckurts*, ii. I-5.

Milk to be subjected to a temperature of 155° F. for half an hour and should be used within twenty-four hours. *Bureau of Animal Industry, Washington*, ii. I-5.

Pasteurizing for thirty minutes at 158° F. destroys bacilli of tuberculosis, diphtheria, typhoid, and cholera, but does not kill the bacteria which cause milk to spoil. Temperature of 200° F. destroys all lactic-acid bacteria. Partially sterilized milk must be kept below 65° F. or consumed within twelve hours. *Flügge*, ii. I-6.

Superiority of mothers' milk to any other form and its value in preventing summer diarrhœa in infants. Absolute sterilization possible, but casein resists reagents, and when artificially digested has an effect different from that produced by unsterilized milk. Milk-sugar also undergoes certain changes after sterilization. *Baginsky*, ii. I-6.

In milk which is supposed to be sterilized there can always be found certain species of aërobic bacteria, which possess peptonizing properties. Five varieties of bacillus lactis peptonans isolated resembling the bacilli of Flügge and Bujwid. Expensive methods have no advantage over boiling in an ordinary clean vessel. After boiling milk should be kept at a temperature under 60.8° F. *Sterlonz*, ii. I-6.

Digestibility of sterilized and unsterilized milk. In healthy children no difference; in sick children sterilized digested equally as well. Health of children does not suffer by use of sterilized milk. Heating milk to 212° F. absolutely kills all bacteria and spores. *Bendix*, ii. I-7.

Preparation of milk for infant feeding. Milk should be diluted with water in proportion of 4 to 6. To every quart 2¼ drachms of albumin and 1¼ ounces of milk-sugar added. *Hempel*, ii. I-7.

Unsuitability of cows' milk for infant feeding consists in the excess of casein. *Stockbridge*, ii. I-7.

Breast-milk is alkaline. Any substitute must therefore be alkaline; cows fed on blue grass and on sugar-beets yield alkaline milk. *Rotch*, ii. I-8.

Milk should be fed to infants only during period in which acidity remains stationary. After this there is an enormous increase of bacteria. Incubation depends upon temperature at which milk is stored and cleanliness. In February city milk remained sweet twenty-four hours; in summer but five hours. *Koplik*, ii. I-8.

Chemical similarities and dissimilarities between blood and milk. (See text.) *Harris*, ii. I-8.

Forty-two per cent. of infant deaths due to digestive disorders in England. In Sweden and Norway only 10 per cent., almost every child being nursed by its mother in latter countries. In Wurtemburg mortality of breast-fed children 13.5 per cent., of artificially-fed children 42.7 per cent. *Jones*, ii. I-9.

[It should be remembered that the poor and ignorant, no less than the rich and educated, must have this article of food, and, if the subject of its preparation is made too elaborate and too costly, the desired end will certainly not be reached. Perhaps a system of board-of-health stations for the preparation and sale of milk would be the best, the municipal government placing its seal upon every bottle which is sold. Then there would be a definite fixing of responsibility, a saving of a vast amount of trouble, and the most efficacious possible safeguard against fraud and disease. The poor particularly should be able to use the milk purchased as soon as they get it without any additional manipulation. ANDREW F. CURRIER, Assoc. Ed., ii. I-10.]

In the care of rachitic children not only good nutriment is essential, but an abundance of pure, uncontaminated air also. *Hagenbach-Burkhardt*, ii. I-10.

Bed for infants in which the evacuation of urine and stools takes place without soiling the infant's skin. (See text.) *Krautz*, ii. I-10.

Dangers which attend the placing of children in day nurseries from infectious diseases of various kinds, and from want of cleanliness. (See text.) *Chaumier*, ii. I-10.

[The dangers are, indeed, real in those institutions which are without suitable care and supervision, but it would seem that such dangers could usually be forestalled and avoided as effectively as they are in hos-

DIETETICS OF INFANCY (continued). pitals for babies and small children. ANDREW F. CURRIER, Assoc. Ed., ii. I-10.]

MALNUTRITION. One of the earliest evidences of malnutrition, an eruption upon the perineum resembling erythema and eczema. Due to a morbid condition of secretions, and may disappear when diet is changed. *Sansom*, ii. I-10.

DIGESTION, DISORDERS OF.

PATHOGENESIS. Hydrochloric acid possesses the power of destroying the microorganisms introduced into the stomach by the food. *Bunge*, i. C-9.

Cholera bacillus very susceptible, typhoid bacillus less so, tubercle and anthrax bacillus much less so. In prevention of disease other factors, such as motor activity of stomach, necessary, however. *Kauffmann*, i. C-9, 10.

Not much dependence to be placed upon microbicide action of gastric juice. *Gilbert*, i. C-10, 11.

Hydrochloric acid the only normal acid of the stomach fixed by albumin; it is the one important active agent in digestion. Peptonization of albumin a minor function. *Schiele*, i. C-11.

Time of appearance of free hydrochloric acid (worthless in digestion) depends on food. Experimental meal of 2¼ ounces white bread and 6½ ounces water causes presence of free acid in one hour in normal cases. *Penzold*, i. C-11.

Presence of sulphuretted hydrogen absolutely independent of amount of hydrochloric acid present. *Zawadski*, i. C-11, 12.

Failure to digest starch one of the most common features in dyspeptics. *Kellogg*, i. C-12.

Increase of activity and hydrochloric acid after exercise, showing necessity of repose before test-meal. *Surmont and Brunelle*, i. C-12.

TESTS. Boas's resorcin test as reliable as Gunzberg's phloroglucin test, and perhaps preferable for quantitative examination. *Friedenwald*, i. C-12.

Boas's resorcin test sensitive and convenient. *Benedict*, i. C-12.

Gunzberg's test more prompt and positive. *Manges*, i. C-12.

Dimethylamidoazobenzol test very accurate and simple. *Friedenwald*, i. C-12.

Recommended: Add 3 or 4 drops of ½-per-cent. solution dimethylamidoazobenzol to gastric filtrate. If color reddish, free hydrochloric present; if yellowish, absent. For quantitative see text. *Toepfer*, i. C-13.

Mierzynski's barium test and the Sjögvist-Jaksch methods remarkably similar. *Wiener*, i. C-13.

Salol test unsatisfactory owing to irregularity in appearance of reaction. *Benedict*, i. C-13.

Salol test unsatisfactory. *Clarke*, i. C-13.

Under normal conditions milk-curdling ferment may be present in gastric contents obtained one hour after Ewald breakfast, in dilutions up to $\frac{1}{40}$ and zymogen up to $\frac{1}{160}$. In chronic gastritis and carcinoma marked diminution of zymogen, while in nervous dyspepsia and secondary catarrh proportions normal. When labzymogen diminishes from $\frac{1}{15}$ to 0, no chance of recovery. *Friedenwald*, i. C-13, 14.

[Gastric chemistry reigns supreme nowadays and is considered as furnishing a scientific basis for treatment. In reality the practical results obtained are inferior to those shown by symptomatic treatment. A. ROBIN, Assoc. Ed., i. C-14.]

Considerable number of observations upon children, both sick and well, showing nurslings in good health or children fed upon sterilized milk, and not the subjects of digestive troubles, sometimes present a trace of indican in the urine. If digestive troubles occur, some indican almost always found, quantity varying with gravity of affection. *Gehlig*, i. E-73.

Relation exists between indican and the acidity of the gastric juice, in the sense that a subnormal amount of free hydrochloric acid calls forth an increased degree of intestinal putrefaction, and therefore an increased formation of indol. Consequently, elimination of indican in the urine may be regarded as an index of the amount of free hydrochloric acid present. *C. E. Simon*, i. E-73.

DIAGNOSIS. Tube only useful in determining chemical properties of stomach-contents. Fats and carbohydrates fermenting when bacteria and yeast found microscopically and butyric and acetic acids chemically; tympanism, eructation of sour gas or liquid symptomatic of fermentation.

Transformation of cooked starch into sugar unimportant if failure compensated for by pancreas. If saliva at fault, masticated piece of potato used for sugar-test will determine whether ptyalin secreted.

Presence of pepsin and rennet of slight practical importance. Indiscriminate use of pepsin inadvisable.

Most important fact is quantity of hydrochloric acid. Decrease usual in gastritis of all grades, dilatation and carcinoma, subacidity and occasionally non-acidity in atonic dyspepsia. Increase in nervous dyspepsia with sharp gastric pain relieved by taking food, and highly acid eructations. Culminates in peptic ulcer. *Benedict*, i. C-14 to 16.

Careful inspection of pharynx for hypertrophic tonsils, etc., prior to introduction of tube important. *Salinger*, i. C-16.

Morning breakfast of coffee and rolls excellent test. If functions normal, it passes unnoticed. If, two hours after, heat and acidity, dyspepsia from excess of hydrochloric acid. If abundance of gas, gastric heaviness and fullness, deficiency of acid. If pain one-fourth hour after, increasing with time, probably gastro-duodenitis. Cramps and vomiting indicate muscular and nervous involvement. *Dujardin-Beaumetz*, i. C-16, 17.

[As is well known, the causes of dyspepsia are multiple; the functional relations between the different organs, diathetic disorders, etc., appearing as diverse etiological factors. Hence differential diagnosis, as regards the causative conditions present in a given case, should be our main guide. A. Robin, Assoc. Ed., i. C-16.]

Objective signs important. High abdominal prominence in excessive eaters; central prominence in dilatation without ptosis (drooping), flattening of abdomen with hypogastric prominence in dilatation with ptosis. Corset causes gastric symptoms by submammary, hepatic, and subhepatic constriction. *Hayem*, i. C-17, 18.

Leucocytosis during digestion an indication that case not one of cancer. *Schneyer*, i. C-18.

Splashing sound while stomach free from food indicates gastric muscular asthenia. *Rose*, i. C-18.

Deep inspirations in dorsal position causes increasing loudness of tympanic percussion-note. May have influence on digestive functions. *Federn*, i. C-18.

Gastrodiaphanoscopy may indicate exact location of a growth, but of no help in early stages. *Martius*, i. C-19.

Gyromele, instrument to explore the stomach and remove adherent material and to locate œsophageal and cardial strictures. *Turck*, i. C-19.

Revolutions of gyromele five minutes cause 0.1 per cent. of hydrochloric acid to be secreted. *Wesener*, i. C-19.

TREATMENT.

BICARBONATE OF SODIUM. Acts by first exciting gastric secretion by action on glands, then depressing it by alkalinization of blood. As excitant: moderate dose before meals for a short period. As sedative: large doses during or after meals for some time. *Dujardin-Beaumetz*, *Huchard*, *Mathieu*, and others, i. C-50.

Bicarbonate of sodium in no way influences secretory power of the stomach, but neutralizes contents. Weak alkalies produce tonic effect on weak mucous membrane. *Reichmann*, i. C-50, 51.

Reichmann's experiments questionable. Faulty technique. *Mathieu*, i. C-51.

HYDROCHLORIC ACID. Supplies to gastric juice the quantity wanting, and, if gastric acid entirely absent, the administered acid also renders pepsin active. Indicated in delayed digestion, chronic gastritis, cancer of stomach, in pyrexias (which almost suppress secretion), pulmonary tuberculosis, under-compensated hearts, especially in chlorosis and anæmia, neurasthenic disorders. Contra-indicated in hypersecretion, ulcer, acute gastric affections, in cancer secondary to round ulcer, nervous and hysterical dyspepsia. As antiseptic prevents abnormal fermentation. *Huchard*, i. C-51, 52.

LAVAGE. Washing of the stomach positively indicated in acute poisoning, stagnation of gastric contents from pyloric stenosis and ileus, at physician's discretion in carcinoma, acute and chronic gastritis, hypersecretion. *German Congress of Physicians*, and others, i. C-52.

Useful in gastric neurasthenia. *Martius*, i. C-52.

Useful in hæmorrhage from gastric ulcer. Should always be done in the evening to give stomach night's rest. *Minkowski*, i. C-52.

Too frequent use deprecated. *Leyden*, i. C-52.

Dangerous in gastric ulcer. *Ferrand*, i. C-52.

Only true indication putrid gastric fermentation with formation of toxins. *Bardet*, i. C-52.

Piece of pyloric mucous membrane found in fenestrum of tube. Length of tube and strength of stream should be carefully regulated. *Ebstein*, i. C-52.

Piece of stomach-tube swallowed. Laparotomy and safe removal from ascending colon. *Landström*, i. C-52, 53.

Apparatus for continuous in-and-out flow of liquid through one stomach-tube. *Hemmeter*, i. C-53, 54.

Double-tube lavage apparatus. *Pitkin*, i. C-54, 55.

Air charged with thymic acid; menthol, cinnamon, oil of cloves, creasote, introduced with stomach-tube. *Storck*, i. C-55.

Menthol-spray through stomach-tube in fermentative, catarrhal, and painful affections when no acute inflammation present. *Benedict*, i. C-55.

Rectal alimentation may be exclusively employed for a long period without serious injury to nutrition of patient. *Huchard*, *Lépine*, *Fournier*, i. C-55.

Important to begin with small 2-ounce enemata every few hours until rectum retains that amount; then it may be increased. *Leisenring*, i. C-55.

When gastric stasis or torpor, patient should always sleep lying on right side. *Dujardin-Beaumetz*, i. C-55.

Hot water, though useful, often causes gastric contractions and becomes distasteful. Hot infusion preferable. Small cup of very

DIGESTION, DISORDERS OF (contd.). hot coffee one hour after meals useful. *Dujardin-Beaumetz*, i. C-56.

Hot drinks in rebellious cases. *Mathieu*, i. C-56.

NERVOUS DISORDERS OF.

ETIOLOGY. In hysteria, cutaneous anæsthesic area over stomach, sensitiveness varying with that of stomach proper; present only when appetite absent; disappears when it returns. *Sollier*, i. C-22.

Mental anorexia a graver form. *Sollier*, i. C-22, 23.

Fatal case illustrating course of disease. *Gull*, i. C-23, 24.

Death from affection *per se* rare; usually due to intercurrent affection. *Debove*, i. C-25.

Old tubercular foci found in fatal case. *Marshall*, i. C-25.

Nothing prepares the soil better for phthisis than does anorexia. *Lasègue*, i. C-25.

TREATMENT. Patient must be forced to eat; appetite will return. *Debove.*

Hydropathy and lavage of the stomach. *Baruch*, i. C-25.

NERVOUS DYSPEPSIA.

DIAGNOSIS. Primary gastric disorder; to be differentiated from gastric neurasthenia, a manifestation of a general trouble. *Illoway*, i. C-25.

Rarely a primary trouble, the stomach reflecting almost every general disturbance. *Stockton*, i. C-25.

Gastric disorders of woman usually but reflexes of pelvic disorders. *Byron Robinson*, i. C-26.

Pain met with in functional disorder as well as in ulcer. In former, pain due to hysteria; tremor of the eyelids preliminary sign of hysteria; but both disorders may co-exist. *Glynn*, i. C-26.

Pain in about one-third functional cases, especially among those who do hard manual labor. *Harris*, i. C-26.

DIGITALIS, POISONING.

Two heaping spoonfuls of tincture of digitalis given by mistake; 1 teaspoonful of fluid extract of ergot given soon afterward. Severity of after-pains and apparent antagonistic action of ergot are of clinical interest. *G. F. Koehler*, v. A-66.

DIPHTHERIA.

ETIOLOGY AND PATHOLOGY. While there is a definite, infectious contagious disease produced by the diphtheria bacilli, other organisms may produce lesions in the throat which are similar to the primary lesions of diphtheria. Lesions are produced in the internal organs by action of soluble toxic substances produced by the bacilli in the primary lesions and absorbed. In most fatal cases there is general invasion of pyogenic organisms, of which the streptococcus is the most common. *Wm. T. Councilmann*, i. H-1.

Lœffler bacillus present in much more than 73 per cent. of real clinical diphtherias. *F. G. Novy*, i. H-1, 2.

Table confirming belief that most fatal cases result from association of Lœffler's bacillus with staphylococci or streptococci; the former combination the most serious. When both cocci present with Lœffler's bacillus, death-rate apparently reduced by one-half. *Shuttleworth*, i. H-2.

In cases with most pronounced septic symptoms streptococci may be absent from internal organs, while these organisms may be found in cases free throughout from septic symptoms. *Generisch*, i. H-2.

Organisms present in 32 fatal cases: Lœffler's bacillus only, 37.5 per cent.; with streptococci, 25.0; with staphylococci, 18.7; with streptococci and staphylococci, 18.7. In all cases staphylococci pyogenes aurei found. No fatal results took place when only cocci were present. *Shuttleworth*, i. H-3.

Study of tissues from 10 fatal cases of diphtheria; diphtheria bacilli found in the foci of broncho-pneumonia. Organisms most abundant in alveoli containing large numbers of cells; usually found inclosed in the cells. *Kutscher*, i. H-3.

There is practically no difference in virulence to be observed between the bacilli derived from severe and mild cases of diphtheria. Diphtheria bacillus does not, as a rule, lose its virulence by long-continued residence in the pharynx and air-passages. *Wright*, i. H-3.

During a diphtheria epidemic virulent diphtheria bacilli found in 17 cases in the mouths of 89 healthy subjects. In a scarlatina ward infected by 1 case of diphtheria, bacilli found in 20 per cent. of children with scarlet fever without diphtheritic infection. *Aaser*, i. H-3.

Case showing that the diphtheria bacillus continues to lurk in the recesses of the nasal cavities and pharyngeal cavities during long periods. *Legendre and Pochon*, i. H-3.

Shortest period for disappearance of bacilli after a patient's admission to hospital five days, and longest forty-two days. Clear case of re-infection after disappearance of bacilli, showing that a definite time-limit cannot be placed to period of convalescence. Isolation of patients should continue until cultures prove absence of bacilli. *Shuttleworth*, i. H-4.

Disease much more important in the adult than has hitherto been supposed, but many cases occur as follicular or acute lacunar tonsillitis; these are usually very benign. *Gouguenheim*, i. H-4.

Diphtheria bacillus found in a case of pharyngitis presenting all characteristics of a common herpetic sore throat. In a second

case, one of the same kind, one of Huchard's, diphtheria broke out very suddenly with intense symptoms, accompanied by herpes of the pharynx and lips. *Dieulafoy*, i. H-5.

DIAGNOSIS AND PROGNOSIS. Results of bacteriological examination for Lœffler's bacillus in 146 cases exhibiting clinically diphtheria, croup, or angina, showing: 1. Clinical diphtheria of pharynx with typical pseudomembranes is in most cases similar to Lœffler's diphtheria. 2. Punctiform diphtheria also, in most cases, is combined with Lœffler's bacilli, and also differs clinically from angina lacunaris. True diphtheria can never be excluded from negative results of bacteriological examination. *Deucher*, i. H-5.

Observations of those who recognize a definite relation existing between the length of the bacilli and the severity of the case from which they are derived not confirmed. In some cases of undoubted diphtheria, clinically, bacilli practically swamped by cocci, notably streptococci; in these only after careful and extensive searching can the colonies of diphtheria bacilli be discovered. In cases in which no obvious antecedent connection established, if from secretion of fauces or nose diphtheria bacilli can be isolated, the case must be pronounced to be one of diphtheria. Most difficulties in diagnosis by culture overcome by sugar-agar plates, for in these almost every colony can be subjected to microscopical examination. Cases of sore throat in which, even on most careful search, no diphtheria bacilli recognized by culture. Cocci chiefly present are staphylococcus aureus and albus and particularly streptococci. Such cases are pseudodiphtheria, or coccodiphtheria. There is no definite relation between virulence of culture and the severity of the case from which culture derived. On the whole, when presence of true diphtheria bacilli is demonstrated, we are justified in declaring the case one of true diphtheria. *E. Klein*, i. H-6 to 8.

Close resemblance of Neisser's xerosis bacillus to the bacillus diphtheriæ. Invariably innocuous when inoculated into animals susceptible to latter. *J. Eyre*, i. H-8.

Clinically it is almost impossible to diagnose many throat affections from diphtheria; results of 860 cases examined bacteriologically showing this. *Landouzy*, i. H-9.

A series of cases with herpetic pharyngitis shown by supervening paralysis to have been diphtheria. *Dieulafoy, Cadet de Gassicourt and Robin*, i. H-9.

Among 322 cases bacillus found but 194 times. *D'Astros*, i. H-9.

Fact of not finding diphtheria bacillus in cases of clinical diphtheria always due to some error in technique. Important practical point: On the surface of membrane bacilli frequently die; therefore, if the culture be taken directly from the surface, in majority of cases a negative result will be obtained. If the wire be passed through the membrane or along its edges a positive result is almost invariably reached. *McCollom*, i. H-9, 10.

The diphtheria bacilli found most abundantly in the superficial layers of the exudation, and not, as formerly taught, in the deeper tissues. Separated from epithelium of the mucous membrane by a layer of fibrin and small round cells, in malignant cases form almost a pure culture in this situation. *Thomas Cherry*, i. H-10.

As to whether by a microscopical examination of a smear of exudate it is possible to make a diagnosis, in many cases possible, but in others quite impossible. Hence, failure to detect bacilli does not necessarily prove their absence. *Shuttleworth*, i. H-10.

Colonies are not always recognizable in twenty-four hours; there are colonies of cocci twenty-four hours which exactly resemble bacilli of same age. When former numerous and latter rare, four or five colonies examined under the microscope may all be cocci. Examination twenty-four hours later shows colonies of diphtheria bacilli easily visible by the naked eye. *Nauwelaers*, i. H-10, 11.

Old plan of inoculating blood-serum with a swab, and then waiting twelve hours for visible colonies to appear, too slow. A platinum-wire loop carefully rubbed over surface, the material secured, then mixed with a drop of distilled water upon a cover-glass, dried, stained with methylene-violet, examined microscopically: Six or seven hours' time saved. Incubators expensive. Eighteen hours at room temperature answers as well as five in the incubator. *Ohlmacher*, i. H-11.

Safest method of direct cover-glass examination to stain with dahlia-methyl green, then with a dilute aqueous solution of Bismarck brown, leaving latter to act until bacilli stained reddish or faintly brown. *Crouch*, i. H-11.

In severe cases there is an early appearance of figured elements in the urine. Little sediment means a light case, especially when epithelium shows but small pathological lesions. In non-diphtheritic angina the characteristic sediment is wanting. If it appear from the very beginning, a pernicious or lasting attack probable. *Bernhard*, i. H-11, 12.

TREATMENT. There are two permanent theories as to mode of action of the Lœffler bacillus. The clinical theory that antitoxin directly neutralizes toxins chemically shown by Buchner and Roux to be incorrect. The vital theory that the toxin, through agency of living body, probably renders the cell tolerant of the toxin. Practical evidence sustains latter. Of great

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practical importance is the fact that a definite quantity of antitoxin is required to neutralize a definite quantity of toxin. In earlier period of treatment insufficient doses were administered. The earlier the antitoxic serum is administered, the better the chances of recovery. It also antagonizes, in large part, the causes of the increased susceptibility to secondary infections and greatly lessens the frequency of their occurrence. Published testimony of those who have had largest opportunity to study therapeutic effects of antitoxin overwhelmingly in its favor. Very few writers on the basis of personal experience, and this by no means a large one, expressed an opinion unfavorable to antitoxin. Eighty-two reports aggregating a total of 7166 cases. Mortality of diphtheria before antitoxin treatment was introduced, 43.5 per cent.; with antitoxic serum, mortality 17.3 per cent. Mortality after tracheotomy reduced from 64.5 to 42.5 per cent.; after intubation from 62.4 to 31.6 per cent. Fatality in 3127 unoperated cases, 11.4 per cent., against a previous mortality of 26 per cent. Furthermore, many cases of laryngeal stenosis relieved by antitoxin in which operation would have otherwise been performed. *Wm. H. Welch*, i. H-12, 13, 14.

[Above statistics include cases published up to about the middle of the year 1895. The literature in the editorial rooms of the Annual shows that during the second half of the year 1895 there were recorded 14,808 cases exclusive of other statistical reports. Percentage of deaths, 17.15. Ed.]

Result of a collective investigation relative to the antitoxin treatment in Germany by the *Deutsche medicinische Wochenschrift*, of patients treated between October 1, 1894, and April 1, 1895. Total number of cases treated, 10,312; mortality 11.8 per cent. *Berthold*, i. H-15, 16.

Generalized use of antitoxin in France dates from January, 1895; since that time increasing diminution in mortality. In 108 towns decrease of 65.6 per cent. of mortality of disease. *Henri Monod*, i. H-16.

In Japan previously mortality 56 per cent.; of 353 by serum-therapy, mortality 8.78 per cent. In 110 cases in which injections made within forty-eight hours after invasion, all ended in recovery. Of 33 cases treated after eighth day of the disease 11 were lost. *Kitasato*, i. H-17.

EFFECTS OF ANTITOXIN ON CELLULAR ELEMENTS. Antitoxin within thirty minutes causes reduction of uninuclear leucocytes and an increase of multinuclear cells. In favorable cases, after injection, leucocytosis never again reaches its original height. In severe cases injection followed by hyperleucocytosis and fever. Multinuclear leucocytes found in blood of favorable cases after treatment by antitoxin show increased affinity for gentian-violet. The variations in the staining reaction of leucocytes in diphtheria indicate that the nuclei of the cells contain a principle essential to phagocytosis and immunity in this disease. *J. Ewing*, i. H-17, 18.

[The writer believes that the reduction of leucocytes may be followed by the formation of capillary emboli throughout the viscera, especially in the lungs and liver, basing this belief on the experiments of Merigo, Goldscheider and Jacob, and his own, in which a moderate reduction of leucocytes in healthy rabbits was often sufficient to produce such lesions. J. Lewis Smith, Assoc. Ed., i. H-18.]

Before the injection of the serum and during height of the disease, multinuclear cells increased in number, sometimes fivefold, while lymphocytes largely diminished, —*i.e.*, fiftyfold. As soon as improvement begins, multinuclear cells fall to the normal proportion; the uninuclear ones increase. Cases which do not improve exhibit after infection an increase of lymphocytes without diminution in multinuclear cells. *Waldstein*, i. H-18.

EFFECTS ON URINE. In 279 cases urine and urinary sediment examined. Lœffler's bacillus detected in all; albumin found in 131; 50 per cent. died. Of 148 in which albumin absent, 20 died,—14 per cent. *Baginsky*, i. H-19.

Albuminuria occasionally observed after use of serum due to the disease, and not to the serum. *Karlinski*, i. H-19.

Albumin in the urine found 82 times in 250 cases. *Moizard and Perregaux*, i. H-19.

In animals spleen and liver enlarged; doses of the strength given to children give rise to nephritis. *Vissmann*, i. H-19.

Albumin found in 72 per cent. following injection in cases which previously had none. *Soltmann*, i. H-19.

Albumin in 24 cases out of 25 previously free from albumin; appearance of latter at once after injection. *Adae*, i. H-19.

Albumin found in 64.84 per cent. of cases. *Schröder*, i. H-20.

Albumin found in 64 per cent. of cases. *Fürth*, i. H-20.

Albumin found in 42.5 per cent. of cases. Violent vesical inflammation. *Bókaï*, i. H-20.

Experiments to determine effects of antitoxic serum in large amounts upon the kidneys and heart. No pathological changes present; serum absolutely harmless upon the kidneys; ordinary doses given in proportion to the body-weight are without effect upon these organs or upon the heart. *Von Kahlden*, i. H-20.

Suppression of the urinary secretion; death

from uræmia after using serum. *Guinon and Roufilange*, i. H-20.

Hyperazoturia constant after injections, amount of urea appearing to be greater in proportion as the recovery is rapid. *Mongour*, i. H-20.

GENERAL MANIFESTATIONS AFTER INJECTIONS.

EFFECTS ON TEMPERATURE. With sufficient number of doses temperature brought down to normal, yet at times remittent fever, lasting many days, appears; constant fall of temperature and pulse-rate. *Monti*, i. H-21.

High temperature with corresponding rapidity of pulse, varying according to age and form of disease, fell following day and was normal third day, when no complications present. Distinct disparity between temperature and pulse frequently present. Disturbances of the circulatory system, among 154 cases, caused no deaths and did not in any noticeable way hinder recovery. *Variot*, i. H-21, 22.

Rise also observed in patients with wounds infected with diphtheria treated by serum. *Rieochon*, i. H-22.

Temperature of 106.6° F. twenty hours after injection in a child and later on the disparity noted by Variot between temperature and pulse. *Legendre*, i. H-22.

Rise in temperature after injection not only with antidiphtheritic serum, but also with artificial serum of Hayem and with the serum of non-immunized animals. *Hutinel, Debove and Sevestre*, i. H-22.

Elevations of temperature following injection dangerous, especially in tuberculous children. Large number of children suffering from tuberculosis of lung or bronchial glands among those treated with serum and dying from diphtheria. *Hutinel*, i. H-22.

Prompt fall of temperature accompanied by remarkably improved subjective sensations, typically altered course of fever. *Heubner*, i. H-22.

Rise of temperature always an important one; return to normal then very gradual, but temperature often remains very high; repetition of injection caused renewal of the effect produced. *Kurt Müller*, i. H-22.

COMPLICATIONS. Exanthemata of various kinds noticed, all different expressions of excretory irritation of the skin. Eruption manifestly allied to the occasional erythematous rash of rheumatism and to the exanthems of measles and scarlatina. *D. Walsh*, i. H-22, 23.

In 231 cases, 14 cases of urticaria, 9 of scarlatiniform erythema, 9 of polymorphic erythema, 1 of purpura, sometimes accompanied by pain in the joints, simulating rheumatism, observed in numerous instances. *Moizard and Perregaux*, i. H-24.

Diphtheritic paralyses frequently met with, Monti's cases showing a proportion of 48 per cent.; but whether this complication could be ascribed to serum was not determined satisfactorily in the cases reported. Case showing that even pseudomembranous angina may cause paralysis. *Bourges*, i. H-24.

When employed at the time serum increases menstruation; when used between menstruations it gives rise to an earlier appearance. *D'Astros*, i. H-25.

UNTOWARD EFFECTS. The death-rate of epidemic diphtheria may oscillate without any relation to the treatment employed; a low mortality was not unknown in pre-serum days. *Moltchanoff*, i. H-25, 26.

Neutralizing effect of serum in cases of pharyngeal diphtheria not operated has not been proved. *Leichtenstern and Wendelstadt*, i. A-26.

Number of cases of death given by Behring's statistics as occurring in the Berlin hospitals during 1894 erroneous. *Gottstein*, i. H-26.

Diphtheria describes in its mortality rising and falling curve; we may now find ourselves in the latter. *Healy*, i. H-26.

It is impossible to judge by statistics as the course of cases of diphtheria not known. Amelioration might arise from the fact that they are no longer locally treated. *Purjecz*, i. H-26.

One hundred and fifty-four cases treated with antitoxin. First three months of 1894 death-rate without antitoxin 32 per cent.; during corresponding months of 1895, with antitoxin, death-rate 28 per cent. No relation between the antitoxin treatment and the recoveries. *J. E. Winters*, i. H-27.

IMMUNITY. In individuals who had had diphtheria, even simple febrile angina, blood-serum had a marked and surprising antitoxic action toward diphtheria. Serum possessing such antitoxic properties met with in 7 out of 8 persons over 40 years of age; in 10 out of 14 from 20 to 40 years; in 5 out of 10 from 4 to 15 years. *Wassermann*, i. H-27, 28.

Remarkable results in the New York Infant Asylum. Diphtheria epidemic completely arrested while prevailing in epidemic form. *Hermann M. Biggs*, i. H-28.

Experiments in Nursery and Child's Hospital during epidemic. Conclusions showing evident value of antitoxin in affording a certain period of immunity against infection; apparent harmlessness of its use in children even of tender age and condition. *Allen M. Thomas*, i. H-28, 29.

During 1894 three outbreaks of diphtheria requiring closing of the Boston Children's Hospital. On a fourth outbreak occurring immunization carried out, no fresh cases developing. *Morrill*, i. H-29.

One hundred and twenty-eight children

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suffering from various forms of sore throat, injected with 5 drachms of serum, without slightest unfavorable result. *Roux*, i. H-29.

Serum immunization not recommended on account of evil effects on temperature. *Lebreton, Magdelaine*, i. H-30.

Immunization not advantageous in a disease which can be so easily cured by the serum. *Variot*, i. H-30.

Immunization may not exercise its protective influence at once; case in point. *Guippius*, i. H-30.

Inoculations protect as well as the curative injections. *Bókaï*, i. H-30.

Complete arrest of a diphtheric epidemic in the village of Doboz, containing 5000 inhabitants. *Torday*, i. H-30.

Twenty-six individuals immunized with 15 minims of Behring's No. 1 serum. Six cases, in one of whom bacillus of diphtheria was found; one, exceedingly affected, ameliorated by serum, but consecutive pneumonia caused the death of the child. *Johannessen*, i. H-31.

Two cases showing that, while curative injections of serum only furnish relative immunity, the same is the case with prophylactic injections. *Carl Goebel*, i. H-31.

Case in which injections caused severe general illness. *Pistors*, i. H-31, 32.

Immunization of 100 scholars, but 1 suffering from diphtheria. *Rojanski*, i. H-32.

One hundred and twenty-five brothers and sisters of children suffering from diphtheria immunized with 20 units of antitoxin. During first three months 3 children had diphtheria,—1 after 4 weeks, 1 after 14 days, 1 after $2\frac{1}{2}$ months. Another suffered $2\frac{1}{2}$ months later from diphtheria of the eyes. Of 46 exposed non-immunized children 1 only attacked by the disease. *Müller*, i. H-32.

Untoward effects may be avoided by injecting very small quantities for prophylactic purposes and by using only serum known to be in the best possible condition. *Behring*, i. H-32.

Serum not an homogeneous liquid, not always completely clean and sterile. Serum serving as vehicle for antitoxin ferments easily, is easily destroyed, affording a good medium of culture for septic micro-organisms. *Variot*, i. H-32.

DOSE AND KINDS OF SERUM. Case illustrating the necessity of giving the proper doses to obtain satisfactory results. *O. Klein*, i. H-33.

[Unless the proper dose be used, the effort made to relieve the sufferer must be relegated to the position of an experimental study upon a living being, and the results should be published as such. The importance of administering the serum as early as possible in the course of the disease is most emphatically sustained by the reports published in the early part of this year,—1896. E. L. Marsh, of Glasgow, for instance (*Glasgow Medical Journal*, May, 1896), reports 146 cases treated by antitoxin; 21 of these were treated within forty-eight hours, no deaths resulting; 20 were treated on the third day, 4 deaths occurring. The average mortality seems to be decreasing; some reports, indeed, are almost surprising. For example, Blumenfeld (*Wiener klinische Wochenschrift*, March 26, 1896), out of 229 cases treated with Behring's serum, records a mortality of only 8.7 per cent.; 60 of the cases were malignant and several of the fatal cases were moribund when treated. ED.]

Pasteur Institute instructions for the use of Roux's serum.

Preventive Action: In doses of $1\frac{1}{4}$ drachms confers immunity lasting from four to six weeks.

Therapeutic Action: $1\frac{1}{4}$ to $2\frac{1}{2}$ drachms enough for benign cases taken at the onset; 4 to 6 drachms in severe cases or when they have passed several days; up to 1 ounce or even beyond in very severe cases. When breathing embarrassed tracheotomy may be rendered unnecessary by an injection of 4 to 6 drachms, followed by another of from $2\frac{1}{2}$ to 4 drachms if improvement not satisfactory. Better to inject at onset a dose of serum stronger than necessary, cutting short the malady rather than to inject weak doses at intervals. In infants under 1 year old as many 15 minims may be injected as the child numbers months. In adults not necessary, unless case extremely grave, to inject more than 4 to 6 drachms the first time. *Medical Press and Circular*, i. H-33, 34.

Indications for Behring's serum. In communities in which diphtheria prevalent, 60 units sufficient to afford protection. Among 10,000 thus treated only 10 acquired diphtheria. Those who developed diphtheria after the 60 units and had a mild attack nevertheless, 150 units should be given. When infection virulent, 600 units a full curative dose. Several doses at intervals more serviceable than a single large dose. *Behring*, i. H-34.

That 600 units the most beneficial dose proven by the collective investigation of *The Deutsche medicinische Wochenschrift*, bearing upon 10,312 cases. Average percentage of 6 per cent. deaths when 600 units used, average percentage of 14.6 when 1000 units used. i. H-34, 35.

Quantity required in a case varies from 1000 to 4000 units of Behring's standard, according to the weight of patient and severity of the disease. *W. H. Park*, i. H-35.

Various serums are of a lower value, weaker as regards immunization units than announced. Behring's No. 1 contained but 33 units, No. 2 but 60, and No. 3 less than

60, while the bottles according to the labels should hold 60, 100, and 140 units. Roux's serum should contain 100 units, contained but 60. Aronson's contained but 33 units. Belfanti and Martino more than 60 units; but none contained 100. *Sclavo*, i. H-35.

Roux's serum preferred. Behring's serum infected with cocci and even with Lœffler's bacilli. *Kasembic*, i. H-35.

Power of Roux's serum equivalent to that of Behring's No. 1; serum possessing a power equal to $\frac{1}{50000}$ according to the French terminology is equivalent to Behring's serum with a power equal to 60 immunizing units; Behring's serum No. 2 is twice as strong as Roux's preparation; therapeutic effects of rival preparations are absolutely identical; cheaper French serum should be preferred. *Janowski*, i. H-35.

Exorbitant price charged for Behring's serum severely condemned. *Idelson*, i. H-36.

PREPARATION OF ANTITOXIN. Preparation of antitoxin. *Klein, Ohlmacher, Fitzpatrick, Arloing*, i. H-36, 37.

CULTURE-MEDIA. Plasma preferable to serum of immunized animals as an injection material. *A. E. Wright and Semple*, i. H-37.

CONTRA-INDICATIONS. 1. Cases of mixed infection; scarlet fever, measles, chicken-pox complicating diphtheria. 2. Cases that are moribund. 3. True septicæmia as result of diphtheria. 4. Distinct evidence of casts and large quantities of albumin in the urine. *Fischer*, i. H-38.

TECHNIQUE OF THE INJECTION. Careful sterilization of the skin at seat of injection and hands of physician. Complete sterilization of syringe by boiling fifteen minutes in a soda solution; needle dipped into alcohol and a 2-per-cent. solution of carbolic acid. *Fischer*, i. H-38, 39.

MEDICINAL TREATMENT. Antitoxin treatment is of use when the process is not limited to the site of invasion. Local treatment should never be neglected. *Fürst*, i. H-39.

Accumulated evidence confirms personal view that there is increased tendency to nephritis, cardiac failure, and septicæmia over what was formerly observed under the old treatment. Older measures should by no means be omitted. Renal activity must be assisted and every precaution taken against sepsis. *Lennox Browne*, i. H-39.

Serum rejected; better results obtained with methodically carried out wet packing. Diaphoresis stimulated, natural efforts of organism to relieve itself of toxic elements encouraged; hydrochlorate of quinine and hydrochloric acid internally; salt-water gargles; cold spray. In septic cases corrosive-sublimate inhalations. Mortality about 3 per cent. in 900 cases. *Wachsmuth*, i. H-39.

Concentrated solution of sublimate in glycerin (1 to 20) locally; two applications, preceded by a boric-acid spray, generally sufficient for twenty-four hours; mortality is 4.7 per cent. *Goubeau and Hulot*, i. H-40.

With above solution but 18 deaths in 112 cases. Applied with cotton tampons, soaked in solution, two or three times a day; necessary to remove excess of solution to prevent toxic action. General tonic treatment. *Moizard*, i. H-40.

Cases in which calomel sublimation rendered intubation unnecessary. Its special indication is laryngeal stenosis, shown by stridulous breathing, hoarseness, or aphonia and lividity. *J. Henry Fruitnight*, i. H-40.

Corrosive sublimate the one remedy on which the greatest reliance can be placed; early administration of strychnine to avoid cardiac complications. *J. S. Carpenter*, i. H-44.

Subcutaneous injection of a solution of iodide of potassium and salicylate of sodium; of 13 cases 8 recovered. *Kersch*, i. H-41.

Injections of pilocarpine; 32 cases, all recovering. *Benesch*, i. H-41.

Coal-oil and oil of turpentine sprayed into throat with hand-atomizer. *J. H. Powell*, v. A-100.

Salaktol, made of hydrogen peroxide, sodium salicylate, and sodium lactate. Apply with pencil to affected portions of throat. *Walle*, v. A-130, 131.

Pilocarpine a specific in diphtheria. *C. F. Howe*, i. H-42.

Pilocarpine a precious auxiliary; less dangerous for children than for adults. *Degle*, i. H-42.

Ten-per-cent. alcoholic solution of menthol applied by means of a piece of cotton-wool three times daily; thirty-two successful cases. *F. Kastorsky*, i. H-42.

Early use of strong hydrochloric acid on the tonsils; local cleanliness by weak antiseptic solution in the pharynx and nose. Alcoholic stimulants as soon as systemic effect of poison is seen; calomel fumigation as soon as laryngeal symptoms appear; intubation in laryngeal symptoms not relieved by fumigations. *Emmett Holt*, i. H-42.

1. Frequent washing of air-passages lessens duration and amount of membrane. 2. Antiseptics in sufficient strength to be germicidal; cause extension and persistence of membrane. 3. Addition of antiseptics to irrigating fluid liable to cause systemic poisoning. 4. Spraying the throat and swabbing can have no good effect, excepting possibly in the hands of an expert. 5. Frequent cleansing of the throat and nasal cavities with a bland solution, plain warm water or normal saline solution, does all that any antiseptic solution can accomplish. *A. Campbell White*, i. H-42, 43.

[Plain warm water is irritating to the

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nasal cavities. An alkaline solution—say, of 1 drachm of sodium chloride to the pint—will not cause pain, whereas plain water will. ED.]

In one series of cases irrigation with warm salt solutions every one to three hours was employed; in a second series same treatment plus spray every three hours of pyrozone, from 5- to 25-per-cent. solution; in a third series irrigation by 1 to 3000 or 4000 solution of bichloride of mercury. Warm salt-water irrigation best to remove membranes, but bacilli disappear most rapidly under corrosive sublimate, or, what is equally good, a solution of boric acid, a tablespoonful to a pint of water; latter solution used without salt water. *Berg*, i. H-43.

Rest is so important in maintaining the general strength that any treatment involving frequent serious disturbances of the patient ought to be looked upon with great suspicion. Cases in which light exercise sufficed to greatly increase prostration and the production of false membranes. *Buckingham*, i. H-43, 44.

PROPHYLAXIS. Pilocarpine; a 1-per-cent. solution of the hydrochlorate three times a day in 10-drop doses. For children under 1 year half of that dose. *Sziklai*, i. H-44.

Topical application of guaiacol applied with cotton-wool, first to one tonsil, immediately afterward to the other tonsil, and after an interval of two or three minutes to the pharynx. *Solomon Solis-Cohen*, i. H-44.

Since 1893 over one hundred tonsils removed in one institution; although diphtheria has been prevalent in its most virulent type every winter and spring in the neighboring country, no evidence of disease since, although same institution repeatedly infected before. *Foster Godfrey*, i. H-44.

INTUBATION AND TRACHEOTOMY. Of 763 cases of severe diphtheria in which 268 recovered, 90 cases with 45 recoveries occurred since the introduction of serum treatment.

Intubation. 1. Time for withdrawing the tube varies within very wide limits. 2. Average time, seventy-nine hours before and sixty-one hours after introduction of serum treatment. 3. View that a secondary tracheotomy must be done if the tube cannot be left within five days is not entertained. *Bókai*, i. H-45.

Before serum treatment intubation mortality 66 per cent. in 124 cases; since antitoxin used mortality reduced to 27.5 per cent. in 73 cases; all cases, of course, severe ones. *Mugues*, i. H-46.

Report of one thousand tracheotomies with mortality of 59 per cent. Diphtheria without tracheotomy, mortality 33 per cent. *Fischer*, i. H-46.

Report of 1929 tracheotomies; deaths, 71 per cent.; 1765 cases not operated on,—26 per cent. *Hagen*, i. H-46.

In laryngeal obstruction arising in course of diphtheria and croupous laryngitis forced dilatation; instrument consisting of a three-bladed, jointed, dilating-cannula, attached to a bent shaft. *Bors*, i. H-46.

[The literature relating to diphtheria has greatly increased during the last year. The interest which has been awakened in reference to this malady has been due not only to its wide prevalence and fatal character, but largely to its treatment by hypodermic injections of immunized serum, which is now on trial wherever there is a medical profession, with, in my opinion, a gradually increasing belief in its efficacy. The greatest benefits conferred on humanity by the medical profession have usually been ridiculed at first. Jenner, when he vaccinated his own children and recommended vaccination to other parents, was violently opposed by physicians and the laity, and caricatured in the leading British medical journal as a hideous monster converting men into beasts. Bouchut, when he recommended intubation in place of tracheotomy, was quickly silenced by the vigorous opposition of Trousseau, and yet, after a generation has passed, O'Dwyer's tubes are used in every important French hospital. In the same manner, the aggregate of good results from the use of antitoxin gives a higher percentage during the last year than formerly; so that the prospect of a general recognition of the efficacy of the antitoxic serum in the near future seems probable. During the investigations relating to the effect of this agent interesting and important facts have been brought to light, as the following: The earlier the serum is injected in the maximum quantity, the better is the result. If the diphtheria has continued a few days, other microbes are likely to occur over which the immune serum has no control. Cases of mixed infection, when, for instance, the Lœffler bacillus, streptococcus, and staphylococcus co-exist; the latter two, not being influenced by the serum treatment, are more obstinate and likely to be fatal than when the diphtheria alone is present. In hospital wards, where different infectious diseases have been treated, the mixed infection is more common than in private houses; hence the statistics of diphtheria are more accurate if taken in private families, where, as is probable, the Lœffler, or diphtheria, bacillus is not complicated with other germs. J. LEWIS SMITH, Assoc. Ed., i. H-46, 47.]

DISLOCATIONS.

UNUSUAL CASES. Two cases of backward dislocation easily reduced. *Hollis Morton*, iii. I-7.

Two cases of divergent dislocation of the ulna and radius. Reduction in both. *Petzholdt, Ferguson*, iii. I-7.

Reduction of dorsal dislocation of five months' standing by "division of muscles." *Spencer*, iii. I-7.

Excision of the femoral head through posterior opening in dislocation of nineteen months' standing. *Ostermayer*, iii. I-7.

Marked deformity of femoral external condyle, including trochlear surface, almost always present. *Appel*, iii. I-7.

Genu valgum the almost universal cause of habitual dislocation of patella in children. *Aldibert*, iii. I-7.

Compound forward dislocation with complete separation. *Albertin*, iii. I-7.

Case of simple dislocation of four months' standing with flexion lost. Removal of bone and restoration of function. *Gamgee*, iii. I-7.

In 29 cases operated by Annandale—21 by removal, 8 by suturing—useful joint in 28. *Turner*, iii. I-7.

Backward dislocation of lower end, of two years' standing, in child successfully reduced. *Berger*, iii. I-7.

CONGENITAL DISLOCATIONS.

SHOULDER-JOINT. Congenital elevated scapula, due to insufficient quantity of amniotic fluid, and twisting backward of arm by uterine walls. *Sprengel*, iii. G-30.

Two cases previously reported ascribed to exostoses in angle of scapula. Third case showing that supposed exostosis was the scapula itself. Inner upper angle rather longer than normal. *Kölliker*, iii. G-30.

Case of congenital dislocation of shoulder in which outer half of right clavicle formed with inner half an angle of about 100 degrees. Right shoulder thus considerably above level of left; most deforming. *Lane*, iii. G-30, 31.

Case in which congenital displacement reduced after trimming head of humerus. *Phelps*, iii. G-31.

Case in which congenital dislocation of shoulder backward reduced by excision of part of humerus. *Eve*, iii. G-31.

Case of congenital subspinous dislocation; condition either uncommon or frequently overlooked, probably a malformation similar to the so-called congenital dislocation of hip. *Roberts*, iii. G-31.

Pseudarthrosis of right humerus with great facility of motion. *Schwertzel*, iii. G-31.

Important to take into account date of accident; although arthrotomy may give good results in comparatively recent cases, total resection preferable in older cases; after-course always more favorable. Elbow, useless to resect head of radius; shoulder, resection must be complete. *Championnière*, iii. G-31, 32.

Superiority of total resection over arthrotomy in adults, more reserved in cases of children. *Félizet*, iii. G-32.

Irreducible dislocations should be divided into two groups. Old cases, nearly always accompanied with alterations of bony surfaces, resection preferable; recent, simple arthrotomy often sufficient. *Ricard*, iii. G-32, 33.

ELBOW. Dislocations of elbow become irreducible in a short time on account of ossification of the periosteum torn away with ligaments, thus forming column of bone which acts as firm obstacle to all attempts at reduction. Never becomes absorbed. In old dislocations resection of dislocated end of radius, lower extremity of humerus and of osseous formation necessary to effect complete reduction. In children extensive resection must be made destroying any osteophytic shoots. *Ollier*, iii. G-33.

Arthrotomy in old unreduced dislocation of elbow. Ideal plan to expose articular surfaces, liberate them from adhesions, and replace them in normal anatomical position. Rarely obtained. Next best resection of lower end of humerus; will accommodate itself to ulnar notch. If this cannot be done, resection of ulnar notch and radius if necessary. *Tillaux*, iii. G-33, 34.

Case of arthrotomy for irreducible backward dislocation of bones of forearm at elbow. Strong, useful joint. *Hotchkiss*, iii. G-34.

Case of congenital absence of radii. *McCurdy*, iii. G-34.

HAND. Irreducible dislocations of the thumb. By means of antisepsis, articulation may now be exposed without danger of causing disorders which formerly proved fatal, or even simple suppuration. No possible objection to arthrotomy and resection. *Amat*, iii. G-34.

Case of contracted elbow, wrist, and fingers following pressure on median nerve by scar-tissue. Clean division of all tendons on flexor side of wrist; satisfactory result; flexion and extension of fingers fully restored. *Tubby*, iii. G-34.

Case of congenital flexion of little finger, phalango-phalangeal resection; good functional result. *Coudray*, iii. G-34.

HIP-JOINT. In majority of children with congenital hip luxations, in whom no secondary changes caused by walking, simple traction upon leg and slight abduction suffice to place head in acetabulum; moderate lateral pressure upon great trochanter sufficient to retain head of bone in position. Twenty successful cases ranging from 17 months to 10 years of age. *Warbasse, Schede*, iii. G-48.

Best possible operation is one which will enable surgeon to effect complete reduction

DISLOCATIONS (continued).
of displaced head of femur and to establish movable joint. Important to preserve continuity of the muscles of the joint, and restoring their healthy condition and contractile vigor. *Hoffa*, iii. G-48 to 50.

Lorenz's endeavor in 140 cases characterized by absolute preservation of continuity of muscles. Three classes of cases. *Lorenz, Warbasse*, iii. G-49 to 52.

Hoffa and Lorenz operations apt to increase disablement of patient. Head and neck of femur usually normal, but capsule is slack, and with weight of body of child dislocation increases. Best results, therefore, obtained before they have learned to walk. Head brought into acetabulum by abduction and outward rotation, and kept there by splint in which child lies a portion of the day, by felt corset coming down over ilia. Five cases. *Mickulicz*, iii. G-52.

All soft parts can be elongated by continued, uninterrupted extension. Limb may thus be brought into place without force. Heaviest weight seven or eight pounds; in young children three pounds sufficient. When head of bone in acetabulum, limbs should be kept in position until parts about joint have become conformed to their position. *Davis*, iii. G-52, 53.

[Sometimes the head of the femur appears to have been replaced in the acetabulum when really it is far from it, as the editor has seen by cutting down on such a joint which gave the impression of being in its proper place before incision. R. H. Sayre, Assoc. Ed., iii. G-53.]

Difficulty not to get head of femur into proper position, but to keep it there. Nature has failed to provide usual means of keeping it there. *Foster*, iii. G-53.

Unfavorable report as regards operation. In double dislocation patients, as a rule, learn to walk comfortably, but pain may appear late in life. Corsets may give comfort; they must not be expected to be curative. *Gibney*, iii. G-53.

DUBOISINE, POISONING.

Twelve cases in which duboisine-extract caused toxic symptoms in epileptics who had first been treated with neutral crystallized sulphate. Quasi-drunken condition, giddiness, vomiting, tingling, psychical and motor excitement. Patients very pale, skin burning hot, abundant sweating, profuse green diarrhœa, polyuria, frequent micturition. Pupils always dilated to the fullest extent. Well to use only the neutral crystallized sulphate, and not extracts of the drug. *E. Marandon de Montyel*, v. A-67, 68.

DUODENUM.

Study of 334 cases and 17,652 recorded autopsies. Disorders noted: 1. Congenital or acquired stenosis; tears. 2. Inflammatory and special ulcerative processes, tuberculous, typhoid, etc., ending in hæmorrhage, perforation, or cicatrization, in the production of which the gastric juice plays most active part. Hæmatemesis and melæna main symptoms. Ulceration may lead to intestinal perforation and occasionally cholecysto-duodenal or colo-duodenal fistulæ. 3. Benign and malignant neoplasms. *Perry and Shaw*, i. D-12 to 19.

Compression from displaced organs, adhesions, tumors, etc. Prominent symptoms: Almost always incoercible, bilious vomiting and alternating constipation and diarrhœa. Gastric dilatation. Surgical intervention usually necessary. *Broù*, i. D-19, 20.

TUMORS. Difficult when situated immediately beyond pylorus. Topographical diagnosis of main importance surgically. *Pie*, i. D-21, 22.

Case of duodenal hæmatoma simulating internal strangulation. *Balster*, i. D-22.

Fatal case of retroperitoneal rupture of duodenum due to traumatism. *Taylor*, i. D-22.

ULCER. Report of 262 cases. Ulcer situated two inches from pylorus in 92 per cent.; solitary in 84 per cent.; usually round. Perforation in 69 per cent.; in 60 per cent. of latter ulcer situated anterior portion of gut. When no perforation occurs, due to adherence to neighboring organs,—pancreas, liver, gall-bladder. Termination, cicatrization leading to obstruction of pylorus and sometimes of bile-duct and pancreatic duct. *Letulle*, i. D-20.

Cases in which death took place without indications of previous disturbance. First symptoms in first pain; in second hæmorrhage. *Burdick, Burdet*, i. D-21.

Case in which location of pain led to diagnosis of appendicitis. *Biggs*, i. D-21.

Diagnostic points: Onset of pain at epigastrium or right hypochondrium; vomiting. Most frequent in males. Non-feculent and sometimes acid nature of gastric fluids and gases. *Sheild*, i. D-21.

Report of two cases. *Heinatz*, i. D-21.

ETIOLOGY. Ulceration of duodenum after burns due to septic infarction of its vessels, gastric juice then acting upon parts cut off from the vascular supply. *Sheild*, iii. C-40, 41.

In 8192 post-mortem examinations, 116 cases of death from perforation of the intestines, 12 due to perforation of duodenum,—10 of these in males, 2 in females. *Latham*, iii. C-41.

DIAGNOSIS. Signs indicating occurrence of intestinal perforation before peritonitis manifests itself. Cardiac and respiratory murmurs heard distinctly on auscultation of abdomen, due to intestinal gas; modification in pulse, beginning of perforation

marked by acceleration, followed within a few hours by slackening due to absorption of putrid gas acting as cardiac poison; most opportune moment for operation. *Gluzinski*, iii. C-41.

Extravasated fluids and gas when non-feculent, and if acid, indicate that region of stomach and duodenum should be explored at once. *Sheild*, iii. C-41, 42.

Fatal case in which symptoms resembled those of internal strangulation. *Eve*, iii. C-42.

Small exploratory incision through linea alba above umbilicus a trifling addition to risks. *Lockwood*, iii. C-42.

DYSENTERY. (See also COLITIS.)

PATHOGENESIS. Experiments tending to show that protozoa of secondary importance as cause. Probably due to special variety of bacterium coli producing experimentally lesions of the disease. *Celli and Fiocca*, i. D-42.

Special diplococcus which, injected in animals, causes characteristic diarrhœa. *De Silvestri*, i. D-42.

Amœba found 86 times in 235 cases diarrhœa and dysentery, most frequently in typical diarrhœa. They destroy and prevent development of bacteria and permit healing of the lesions. *Cassagrande and Barbaglio-Kapisardi*, i. D-42, 43.

Investigations in 153 cases in which bacillus coli and bacillus pyocyaneus seemed to play a more important rôle than the amœba coli. *Gasser*, i. D-43.

Amœba coli of secondary importance. *Vivaldi*, i. D-43.

Suppurative hepatitis almost always the consequence of dysentery, a single pathogenic element producing both diseases. Streptococci, and not amœba, found everywhere. *Zancarol*, i. D-43.

"Single" tropical abscess also due to previous attack of dysentery in some cases. *Leahy*, i. D-43.

Fatal case of measles in which dysentery occurred as complication. *Meslay, Jolly, Cornil*, i. D-43, 44.

External otitis and mastoid phlegmon as complications of dysentery. Bacterium coli in suppuration. *Mathias and Gasser*, i. D-44.

Case complicated with infectious pseudo-rheumatism. *Brault*, i. D-44.

Three cases complicated with nephritis. *Troitsky*, i. D-44.

Case of amœbic dysentery with spontaneous cure. *Preston Ruhräh*, i. D-44.

TREATMENT. Fresh seed-fruits: strawberries, grapes, and figs. *De Butts*, i. D-44.

Rest in bed and milk diet until pain, diarrhœa, passage of blood or mucus have all ceased and formed motions have passed for some time. *Leach, Ward, Hale White*, i. D-44.

Iodoform, 46 grains; gum-syrup, 6½ ounces; used for three injections—morning, noon, and night—and stopped when number of stools diminished. *Bense*, i. D-45.

Ipecacuanha 7½ grains with ⅞ grain opium morning and evening until no more blood appears and tenesmus relieved. Enemata with nitrate-of-silver solutions every few days. *Zancarol*, i. D-45.

In 137 cases mortality with ipecacuanha and opium treatment 9 per cent., and with beta-naphthol 45 grains daily in adults 2 per cent. *José A. Clark*, i. D-45.

Large enemata of nitrate-of-silver solution 20 grains to the quart of distilled water, with 20 to 30 drops of laudanum; repeated as required. *Gallay*, i. D-45, 46.

Powdered cinnamon, 1 drachm, mixed with a few drops of water, made into a ball, taken night and morning. *Avetoom*, i. D-46.

Chaparro amargosa in doses of from 10 to 60 drops of fluid extract. *Crittenden Knox*, i. D-46.

DYSMENORRHŒA. See MENSTRUATION.

DYSPEPSIA. See DIGESTION, DISORDERS OF.

EAR, DISEASES OF.

AURICLE.

PROMINENT AURICLES. Incision along posterior insertion-line of auricle. Second incision over mastoid process, bow-shaped, ends united with ends of first incision. Skin between incision removed, auricle pressed back, margins of incisions united by strong sutures. *Haug*, iv. C-4, 5.

TUMORS. Evidence in favor of contention that proclivity of insane to othæmatoma is due to peculiar degeneration in cartilage of the ear. *Middlemass and Robinson*, iv. C-1.

[Hæmatoma auris as condition peculiar to insane in the United States not the rule. Tendency to regard othæmatoma as due to bacterial influence increasing. TURNBULL AND BLISS, Assoc. Eds., iv. C-1.]

In five cases examined staphylococci or different varieties of streptococcus present. *Goodall*, iv. C-2.

Streptococci in extravasation in five cases. *Gellizzi*, iv. C-2.

Fibrous tumors appearing as result of inflammatory process induced by piercing for ear-rings. Frequent in negroes. *Bullard*, iv. C-2.

[As infrequent in the negro as in the white race, but frequent in mixed races, especially the mulatto. TURNBULL AND BLISS, Assoc. Eds., iv. C-2.]

Two cases of circumscribed tuberculous nodules of auricle and lobule. *Haug*, iv. C-2, 3.

Artificial auricle made of vulcanite and aluminium. Adhesion to the head effected

EAR, DISEASES OF (continued).

by means of a saturated solution of mastic in absolute alcohol. *Grove*, iv. C-3, 4.

EXTERNAL AUDITORY CANAL.

DIFFUSE INFLAMMATION. Instillation into canal of 4-per-cent. solution of salicylic acid in alcohol. *Herzog*, iv. C-8.

Orifice in inferior wall of external auditory meatus, in front of tympanum in early childhood; through it collections of purulent matter escape without existence of otitis media. *Mayet*, iv. C-8.

ECZEMA. Solutions of nitrate of silver $\frac{1}{10}$ after cleansing auditory canal. Fine pledget of cotton soaked in solution and laid within canal. In simple eczema, should remain untouched twenty-four hours. In furunculosis must be repeated within two or more days. *Hamet*, iv. C-7, 8.

Strong solutions of nitrate of silver valueless. Nothing equal to black wash, *ad libitum*, applied by instillation. *Burnett*, iv. C-8.

EXOSTOSIS. Removal of an exostosis from auditory canal with chisel, after having exposed growth by detaching and growing forward auricle. *Hovell, Taylor*, iv. C-5, 6.

Exostoses most frequent among ancient Peruvians, may be accounted for by artificial compression of the head. *Ostmann*, iv. C-6, 7.

STENOSIS. Operative interference in cases of stenosis marked by considerable hypertrophy of soft tissues. *Corradi*, iv. C-8, 9.

MEMBRANA TYMPANI.

INJURIES AND ABNORMALITIES. Examination of five cases of fractured skull, before and after death, in which tympanic membrane injured indirectly by blows. In every case fissure extending from periphery toward *umbo*. *Thomas*, iv. C-9, 10.

Blake's discs in three cases of abnormality of tension in sound-conducting apparatus. Disappearance of symptoms. *Marple*, iv. C-10.

NEW INSTRUMENTS FOR EXTERNAL EAR. New myringotome. Features: size of handle, giving firm hold, and angle. *Williams*, iv. C-11, 12.

New instrument for removing foreign bodies. Cement-lined cup that can be made adhesive by heat. *Eldridge*, iv. C-12.

MIDDLE EAR.

MIDDLE-EAR CATARRH. Prognosis most favorable in children and young adults, in whom cause plainly attributable to local and removable obstruction. When hearing power after inflation recovered in part only, disease will continue to develop. Prognosis unfavorable where, with much deafness, no improvement under active measures. Prognosis absolutely bad when symptoms point to primary sclerosis or when tuning-fork tests point to serious labyrinthine disturbance. *Field*, iv. C-13.

Good results in a great number of cases of chronic non-suppurative catarrh by the use of intra-tympanic massage with vapors. *Wurdemann*, iv. C-16, 17.

"Ossicular massage": regular movement of each ossicle, one upon the other. Improved hearing in over 90 per cent. of cases. *Lautenbach*, iv. C-17, 18.

Aural masseur. Mild action given best results. *Jackson*, iv. C-18.

Vibratory massage in sclerosing otitis media. Most effective number of vibrations from 80 to 160 per second. *Clark*, iv. C-18.

Six months' experimenting with vibration; negative results generally. *L. Turnbull*, iv. C-18.

Electro-pressure sound for direct vibration of membrana tympani. *Lester*, iv. C-18, 19.

New masseur for drum-head and ossicular chain. *Delstanche*, iv. C-19.

Vibrometer in cases attended by muscular degeneration of no value; may be injurious to parts of ear still unaffected. *Willcts*, iv. C-19.

All forms of masseurs have absolutely no scientific otological standing, and were pronounced useless, and even harmful, in a discussion at meeting of American Otological Society. *Burnett*, iv. C-19, 20.

Best results obtained by early removal of the bone; of little use in sclerosis. Chronic aural vertigo permanently relieved by liberation of stapes or extraction of bone. In non-suppurative disease of middle ear surgical mobilization should first be tried before attempt to remove stapes. Most operations for mobilizing stapes or freezing oval window experimental. *Jack*, iv. C-13, 14.

Favorable results in carefully-selected cases. *L. Turnbull*, iv. C-14.

Case in which extraction of malleus from an ear affected with suppurative inflammation appeared to improve functional activity of the other ear. *Urbantschitsch*, iv. C-14.

Malleus-extractor of Delstanche a most useful instrument. *Beco*, iv. C-14.

For sclerosis of middle ear continuous current more active to relieve tinnitus than faradic. For deafness, faradic current. *Munier*, iv. C-15.

Interrupted current preferred; continuous current injurious. *Slaes-Brame*, iv. C-15.

CHRONIC DRY CATARRH. Intra-tympanic injections of a 3-per-cent. solution of bicarbonate of soda in equal parts of glycerin and water or parolein, sterilized and applied while warm with large Pravaz syringe through Eustachian tubes, per catheter, 2 or 3 fluidrachms, or through Weber-Ziel's intra-tympanic catheter, 20 to 30 minims. *Bonner*, iv. C-15, 16.

SUPPURATIVE OTITIS MEDIA. Intra-

tympanic injections a very unreliable method. Practically useless to inject fluids through Eustachian tubes, as they fail to reach higher parts of tympanic cavity. Masses of secretion floated into mastoid antrum. *Bing*, iv. C-20.

Antiseptic washes fail to destroy micro-organisms and are themselves irritating. *Gradenigo and Pes*, iv. C-20, 21.

Otitis media a complication of pneumonia. Three cases in children. *Ball*, iv. C-21.

[Paracentesis should be performed early enough to liberate serum and prevent pus-formation. TURNBULL AND BLISS, Assoc. Eds., iv. C-21.]

True median otitis caused by bacillus pyocyaneus rare. Two cases in which pure cultures obtained. *Gradenigo and Pes*, iv. C-21.

Most potent organism of the otitis media of scarlatina the streptococcus pyogenes. *Braxall*, iv. C-21, 22.

Ready means for sterilizing pledgets: Solution of boric acid in alcohol; pledget dipped in the solution, then held to the flame of an alcohol-lamp. *Lermoyez and Helme*, iv. C-22.

Interference in tubercular otitis media only when necessary to liberate retained pus. *Guranowski*, iv. C-22, 23.

Very frequent in the newborn. In autopsies on 108 infants 1 month old lesion of tympanum in 85 cases; in 38 of these pus in middle ear. In 47 infants 37 cases of otitis. *Hartmann*, iv. C-23.

Tincture of iodine two or three times a week with probe wrapped with cotton. Burning ceases when air shut out by pledget of cotton. *Hoover*, iv. C-23.

Alumnol, 5 grains to the ounce of alcohol, preferred to solutions of boric acid. For cocainization of middle ear, small ball of solid benzoinol with 20 per cent. of cocaine. Melts readily; much quicker and more lasting anæsthesia. *Nichols*, iv. C-23.

GRANULATIONS. Trichloracetic acid fused into fine ring or loop on the end of an iron wire after cocainization. Superabundant acid syringed away. *Okuneff*, iv. C-24.

PERFORATION. In 150 cases course of treatment in acute cases averaged twenty days; in chronic cases eighty-five days. Thorough cleaning, air-douche, paracentesis in cases needing drainage, and boric acid. *Eitelberg*, iv. C-24.

[Of interest to note that treatment used by Eitelberg to-day does not differ to any marked extent from that taught his pupils ten years ago. TURNBULL AND BLISS, Assoc. Eds., iv. C-24.]

Excellent results following transference of children suffering from otorrhœa and caries to the Riviera. *Hessler*, iv. C-24.

New electrical otoscope. *Mauri*, iv. C-24.

Aural auscultation tube. *Cheatle*, iv. C-24, 25.

Device for holding pus-pan under the ear. *Cummins*, iv. C-25.

Self-retaining aural polypus-forceps. *Wingrave*, iv. C-25.

SUPPURATIVE INFLAMMATION OF THE MIDDLE EAR. Non-irritation of inflamed parts, with loose, light, antiseptic dressings, introduced by surgically clean hands and instruments. *Burnett, Schwartz, Gradenigo and Pes, Lermoyez, Helme*, iv. C-27.

ACUTE OTITIS MEDIA. All forms of inflation of tympana should be carefully avoided for welfare of ear already infected and to avoid forcing germs into unaffected ear. Dry heat. Instillation of 10 drops of a warm, watery, 2-per-cent. solution of carbolic acid or mercuric chloride (1 to 10,000), if congested membrane can endure such a column of fluid, which it rarely can. As soon as membrana perforated, strip of iodoform or carbolic-acid gauze, 1½ inches long by ¼ inch wide, inserted into auditory canal. After twenty-four hours dressing renewed if previous dressings moist, or let alone for twenty-four hours if dry. No syringing. Middle ear heals rapidly and perforation closes. Report of six cases of mastoid empyema seen in consultation, all resulting from improper treatment. *Burnett*, iv. C-27, 28.

In suppuration from attic and antrum preliminary removal of malleus in six cases. Improvement, but in none permanent cure. *Barr*, iv. C-28.

Stacke's method in 12 cases, with 2 complete cures. Schwartze's modification in 57 cases; 31 cures. *Pause*, iv. C-29.

In these cases cavities intensely septic; removal of healthy bone brings them into communication with cerebral structures. *McBride*, iv. C-29, 30.

Dental burr far more serviceable than chisel and gouge, clean surface permitting estimation of direction and depth. *Barr*, iv. C-30.

CEREBRAL COMPLICATIONS. Extension from middle ear to brain and membranes preventable; disease in middle ear should be thoroughly eradicated; when brain trouble, necessary to remove not alone infected part, but also path of infection. *Macewen*, iv. C-30, 31.

New method of attico-antrotomy. Areas laid open and connected with auditory canal by means of Collin's perforator. *Jasinski and Orzel*, iv. C-30.

Two cases of septicæmia due to middle-ear disease. Recovery. *Nash*, iv. C-31.

Acute inflammation of middle ear terminating in purulent periphlebitis of lateral sinus and thrombosis. If persistence of deep-seated pain behind mastoid process after antrum opened and thoroughly drained,

EAR, DISEASES OF (continued).

not advisable to await chills or raised temperature before resorting to operative interference. *Buck*, iv. C-31.

PARALYSIS. Examination of the ear made too infrequently in cases of facial paralysis. In suppurative otitis media and in sclerosing form, also, extension of inflammatory process to facial canal and involvement of nerve possible. *Lannois*, iv. C-25.

Period at which facial paralysis occurs very variable, particularly in children. Frequency in recent cases : 4 times in 658 cases of suppurative otitis. *Lake*, iv. C-25, 26.

Case of paralysis of chorda tympani following instillation of glycerin-phenol $\frac{1}{10}$ employed to relieve pain. *Haug*, iv. C-26.

Five cases in which neuralgia of temporo-maxillary joint associated with ear disease. *Bruck*, iv. C-26.

TABES. Cases of bulbar tabes may exhibit sclerosis of inner wall of drum-cavity and inner surface of membrana tympani. *Collet*, iv. C-26.

MASTOID. Facial or semicircular canal may be wounded if chiseling extend 1 to 4 millimetres back of sulcus tympanicus. Chiseling unnecessary, tympanic cavity readily accessible through meatus. *Hartmann*, iv. C-31, 32.

Two cases in which Wilde's incision caused introduction of infection into the system. *Chipault and Demoulin*, iv. C-32.

Wilde's incision should be abandoned. *Broca and Lubet-Barbon*, iv. C-33.

Cases presenting comparatively painless mastoid disease. Origin obscure. Possibility that among organisms there may be one or more species which create toxins possessing anæsthetizing power over sentient nerve-fibrils. *Buck*, iv. C-33 to 35.

New set of retractors for mastoid operations. *Thorner*, iv. C-35.

Four cases of acute caries and necrosis of temporal bone after influenza. Greatest similarity to acute osteomyelitis. *Lemcke*, iv. C-35.

Case in which middle-ear inflammation originated in tympanic cavity, diabetes favoring rapid extension of inflammation to mastoid cells and remarkably rapid and destructive process. Operative treatment fruitless. Immediate improvement after treatment for diabetes instituted. *Davidsohn*, iv. C-35, 36.

Case of exfoliation of the cochlea. *Goldstein*, iv. C-36.

Case of necrosis of part of occipital bone during attack of mastoiditis. *Buys*, iv. C-36.

SINUS-THROMBOSIS AND CEREBRAL ABSCESS. Temporal lobe and cerebellum almost exclusively seat of abscesses of otitic origin. In great majority of cases abscess lies in close contact with petrous bone ; in trephining instrument must be placed and kept close to latter. All suppurative processes in posterior part of petrous portion and mastoid endanger cerebellum. Diagnosis of cerebellar abscesses difficult. Bilateral choked disc an indication. *Hansberg*, iv. C-36 to 38.

In septico-pyæmia consecutive to otitis media suppurativa prompt treatment of all purulent processes avoids necessity for operations for sinus-thrombosis in most instances. *Nimier*, iv. C-38.

Pyæmia of otitic origin; 9 cases collected, recovery in 6. Where no lung involvement prognosis favorable. Graver symptoms avoided by prompt opening of mastoid antrum. *Hessler*, iv. C-38.

Four cases of sinus-pyæmia and jugular thrombosis, 1 recovery. *Abbe*, iv. C-39.

Cases not rare in which sinus-thrombosis occurs from suppurative otitis media without mastoid symptoms. *Bull*, iv. C-39.

Phlebitis of the lateral sinus treated by curettement. *Chipault*, iv. C-39.

Two cases of cerebral abscess following suppurative otitis media with mastoiditis and sinus-thrombosis ; recovery by operation. *Moss*, iv. C-39.

A case of abscess of cerebellum caused by obstruction to drainage of suppurating middle ear by large polypi in external canal. *Thomas*, iv. C-39.

Results of treatment of thrombosis of sinus by opening and irrigating very good ; death almost inevitable if expectant plan adopted. Best to ligate jugular at junction of facial beforehand; metastasis thus avoided. *Bergman*, iv. C-39.

Stress upon importance of surgical interference. *Broca, Ducellier, Picque*, iv. C-39.

[Graver complications of mastoiditis, where meninges, cerebrum, or great vessels involved, need not, at this day, be regarded as necessarily hopeless and fatal. These conditions now within the range of modern surgical procedures. Graver complications can be avoided by prompt resort, in all cases indicating the need, to the methods of Stacke and Schwartze for giving free drainage. Resort to these modified mastoid operations can, in the great majority of cases, be avoided if every patient suffering from acute otitis media is treated by aseptic, antiseptic, non-irritating methods for the otitis itself and for the usually attendant post-nasal catarrh. TURNBULL AND BLISS, Assoc. Eds., iv. C-39, 40.]

INTERNAL EAR. Investigation with tuning-forks of middle register in over 600 cases. *Alderton*, iv. C-40, 41.

Use of Gardiner Brown's model of tuning-fork for the low-pitch fork usually employed recommended. *Grant*, iv. C-41.

Principal types of cases showing disproportionate relationship in ability to hear

different classes of sounds. *Gradenigo, Zwaardemaker*, iv. C-41, 42.

Monaural diplacusis rare, usually harmonic. *Gradenigo*, iv. C-42.

Harmonic diplacusis ascribed to disease of the internal and disharmonic to that of the middle ear. *Daae*, iv. C-42.

Aural inhibitions frequent and easily produced in neurasthenics and hysterical subjects,—"inhibitropes." *Gellé*, iv. C-42, 43.

Long residence in India sometimes causes nerve-deafness. Neither pilocarpine nor galvanism of service. *Jones*, iv. C-44.

Importance of recognizing fact that nerve-deafness is frequently accompanied by middle-ear disease. Barr, iv. C-44.

Study of seventeen collected cases. Prognosis in cases of labyrinthine necrosis more favorable than supposed. Mortality 15 per cent. After removal of sequestrum suppurative process materially lessened; in many it ceases altogether. Facial paralysis permanent in some, only transient in others. *Connal*, iv. C-44.

ECTOPIC GESTATION.

PATHOLOGY. Tubal abortion during early months little recognized, nevertheless frequent. Takes place suddenly, ovum being expelled into abdominal cavity. Small intra-peritoneal hæmatocele is formed, which gradually disappears. *Muret*, ii. F-61, 62.

Case in which ectopic ovum was observed on the act of passing through abdominal ostium. No rupture of tube-wall. *Edebohls*, ii. F-62.

Specimen illustrating tubal abortion at fourth week. Ovum found uninjured among clots, ampulla showing all signs of ectopic gestation. Internal hæmorrhage severe and operation performed. *Piering*, ii. F-62.

Old theories as to extra-uterine pregnancy are obscure. Caused, in part, by previous local pathological lesion. Grafting of ovum can only occur on tissues modified by inflammation. *G. Tainturier*, ii. F-62.

Case in which large uterine cast passed from vagina. Identical with those in extra-uterine gestation. Cœliotomy. No evidence of extra-uterine gestation found. *W. S. A. Griffith*, ii. F-62.

Tubal-mole pregnancy showing early hæmorrhage into decidual membranes. Recurrence, after death of ovum, of two attacks of intra-peritoneal hæmorrhage at an interval of three and six weeks. Occurrence of ectopic gestation in a woman who had given birth to a child at full term only two years before. *Hiram N. Vineberg*, ii. F-62, 63.

DIAGNOSIS. Pulsation on one side of tumor often observed to be greater than on opposite side. Of value in indicating whether fœtus is alive or not. *M. Hofmeier*, ii. F-63.

In addition to usual early symptoms, tipping of uterus laterally, elastic swelling at site of ovum. Exquisite tenderness at this point. *J. E. Janvrin*, ii. F-63.

Examination more satisfactory when patient in unconscious state. Absolute demonstration possible only by exploratory cœliotomy. Practically without risk. *E. S. Haynes*, ii. F-63.

Hysterectomy for supposed fibroma of fundus proving to be tubal gestation. *Delaunay*, ii. F-63.

ATYPICAL CASES. Case in which the fœtus developed six months, remained after its death eleven months longer in sac, then became infected from small intestine, woman dying of peritonitis. *Zemann*, ii. F-67.

Abdominal pregnancy complicated with fibroid of uterus; death of mother; child found living and removed; supposed to be at full term. *W. F. Nutt*, ii. F-68.

Ectopic gestation with rupture of hæmatocele into bladder. *Schwartz*, ii. F-68.

Case in which tubo-uterine pregnancy occurred twice in succession. *Ekehorn*, ii. F-68.

Case in which placenta was inserted in intestine. *Houzel*, ii. F-68.

Successful removal of extra-uterine lithopedion of three years' standing. *Djemil-Bey*, ii. F-68.

Case of same kind; two normal periods since leaving hospital. *Anna Lydia Church*, ii. F-68.

Two cases with retention of fœtus eight and thirteen years, respectively; operation; recovery. *Matthew D. Mann*, ii. F-68.

Twin tubal pregnancy; retention of fœtus fifteen years. Recovery six weeks after operation. *Folet*, ii. F-68.

INDICATIONS FOR OPERATION. Primary abdominal section during life of fœtus has proved successful to mother and child in considerable number of instances. Faradism, puncture, and aspiration, except to destroy life of fœtus, unscientific. *J. A. Shaw-Mackenzie*, ii. F-63.

No longer a convert to galvanism for arrest of tubal pregnancy. *Mundé*, ii. F-64.

Galvanism should be used when diagnosis is made before rupture, unless an expert operator be present; but cœliotomy in experienced hands always proper in early unruptured cases. *S. L. Jepson*, ii. F-64.

Operation as soon as diagnosis made. One of the easiest of abdominal procedures. *A. Lapthorn Smith*, ii. F-64.

RUPTURE OF TUBAL SAC. Clinical history differs from that laid down by older writers. Not a few recoveries reported as rupture into broad ligament are really rupture into the peritoneal cavity. In cases reported diagnosis indicated rupture into fold of broad ligament. Subsequent operation demonstrated that they were intra-peritoneal. All patients should be carefully

ECTOPIC GESTATION (continued).
watched with idea of performing immediate cœliotomy if alarming symptoms develop. *Rufus B. Hall*, ii. F-64, 65.

Outline of signs in rupture. Patient suddenly seized with pain in iliac region; becomes faint, dizzy, nauseated, pale, and experiences frequent desire to go to stool. Boggy mass found posterior to uterus; slight, bloody, shreddy mucous discharge. *Henry D. Ingraham*, ii. F-65.

Four cases in which the hæmorrhages nearly always came from appendages. *Rochet*, ii. F-65.

Arteries in tubal sac bleed very freely; hæmorrhage does not tend to stop spontaneously; but vessels in adherent structures outside the sac do not seem to share in this peculiarity. *Alban Doran*, ii. F-65.

Mortality depends first upon amount of blood lost and secondly upon the degree of so-called peritoneal shock. When there is good reason to suspect faulty pregnancy, immediate exploration advised. Mortality in deliberate operations upon well-prepared patients and with experienced operator very small indeed. *Maurice H. Richardson*, ii. F-65.

Even before eighth week there may be hæmorrhage of a slowly progressive character. Concurrence with Janvrin that so-called colicky pains are signals of hæmorrhage. In presence of diagnosis of ectopic gestation immediate section should be the rule. *Egbert H. Grandin*, ii. F-66.

[Ectopic gestation at any stage should be regarded in the light of malignant disease and as demanding operation as early as the exigencies of the case will permit. In this form of pregnancy the life of the mother should alone be considered. Alarming, even fatal, hæmorrhage has been known to occur as early as the fifth week. The danger from shock is so great that rupture should not be awaited where the diagnosis has been determined. E. E. Montgomery, Assoc. Ed., ii. F-66.]

Specimen of tubal pregnancy illustrating danger of delay. Diagnosis of ectopic pregnancy, followed by active symptoms. Failure to notify surgeon in time. Abdomen found full of blood; death. *Henry C. Coe*, ii. F-66.

Unfortunate experience of the same kind due to teaching of books that hæmorrhage might take place into broad ligament, instead of free cavity, and cause no further trouble. *Nammack*, ii. F-67.

[At the Jefferson Hospital Clinic I examined a woman who had a small mass to the left of a retroverted uterus, in which pulsation as distinct as over the radial artery was apparent. Ectopic gestation was recognized. Less than ten minutes subsequently I was called to see her in a state of collapse. Immediate operation was urged, but over an hour transpired before permission could be secured. The abdomen contained a quart of blood and the patient soon expired. E. E. Montgomery, Assoc. Ed., ii. F-67.]

Saline infusion while performing cœliotomy in case of ruptured tubal pregnancy; 20 ounces of normal saline solution injected into thighs and rectum. Patient held up unexpectedly well. *Wallace A. Briggs*, ii. F-67.

Compression of aorta most effectual in arresting hæmorrhage. Regret that this means not more employed. Recommended by Bishop in '93. *J. Anderson Springle*, ii. F-67.

[Pressure over the aorta cannot well be made above the origin of the ovaries and arteries; hence, its application must be of doubtful utility. E. E. Montgomery, Assoc. Ed., ii. F-67.]

ECTROPION. See Lids, Diseases of.

ECZEMA.

ETIOLOGY AND PATHOLOGY. Herpetism and arthritism with vulnerability of the skin and disturbances of the innervation. *Breda*, iv. A-13.

When albuminuria shows itself in connection with eczema it is due to the fact that the patient is particularly predisposed to nephritis. *C. Bruhns*, iv. A-13.

Numerous exanthems which occur after frictions of mercurial ointment not caused by mercury, but by presence in deteriorated ointment of turpentine, fat acids of high acidity, and nitrobenzol. *A. Neisser*, iv. A-13.

Case of eczema marginatum, eruption covering vulva, anus, inside of thighs, well up over abdomen. *H. H. Morton*, iv. A-14.

Two cases of eczema of the glans penis. *W. Frick*, iv. A-14.

Case of acute eczema of the face following typhoid fever. *Hale White*, iv. A-14.

Case of eczema of the leg; nummular form, probably due to contagion. *Hutchinson*, iv. A-14.

Fatal case of generalized eczema. *Legendre*, iv. A-14.

Probably an excretory inflammation; object of treatment to relieve skin by shifting the stress of elimination to sound organs; in gouty persons salines that act on the bowels and kidneys; dermatitis once started, however, becomes complicated by invasion of numerous micro-organisms; hence mild local applications, creolin ointment (½ drachm to 1 ounce of vaselin), or a weak creolin lotion (½ drachm to the pint of water) will suffice for a cure. *David Walsh*, iv. A-14, 15.

TREATMENT. Decoction of myrtleberries evaporated till it becomes a syrup; marked changes on second day in chronic cases. *Winternitz*, iv. A-15.

In a case of acute impetiginous eczema of the hands rapid improvement from the thyroid extract. *Menzies*, iv. A-15.

In dry eczema: ℞ Menthol, 30 grains; resorcin, 15¼ grains; precipitated sulphur, 2½ drachms; zinc oxide, 3½ drachms; vaselin, 1 ounce. *Thibierge*, iv. A-15, 16.

Case of eczema of scalp in a man of rheumatic tendencies, rheumatism disappearing with appearance of eruption; cure by salicylic acid. *C. E. Lockwood*, iv. A-16.

Salicylic acid used for years in eczema in cases of rheumatic diathesis, with use of water as a diluent, patient eating sparingly of meats. *L. D. Bulkley*, iv. A-16.

In the so-called uric-acid diathesis trouble not due to excess, but to retention, of uric acid; important point is that metabolism goes on perfectly. *Elsner*, iv. A-16.

ECZEMA PILARE.

PATHOLOGY. Bacteria exist in certain quantities on normal upper lip and openings of nostrils; staphylococcus pyogenes albus the customary inhabitant of these regions. *Perrin and Aslanian*, iv. A-16.

TREATMENT. One of the most obstinate lesions; mercurial ointments containing yellow oxide or calomel, styrax-ointments, and sulphur-ointments may be associated as follows: ℞ Styrax, 1¼ drachms; precipitated sulphur, 8 grains; oil of sweet almonds, 4 drachms. *L. Brocq*, iv. A-16.

[Another topical remedy, little known, which sometimes succeeds in rebellious cases, is blue pyoktanin in a 25-per-cent. solution, applied to all the pustules after they have been opened. The nasal cavities should receive proper attention, since it depends upon chronic coryza, or at least upon frequently-repeated attacks of that disease; the pathogenic microbe will be found in the nasal fossa. L. Brocq, Assoc. Ed., iv. A-16.]

ECZEMA SEBORRHŒICUM CIRCINATUM.

TREATMENT. Shows a semi-annular configuration usually easy to recognize; readily cured, but recurs easily. Use following ointment: ℞ Tannin, 30 grains; calomel, 15 grains; glycerolate of starch with neutral glycerin of Price, 1 ounce. Skin to be kept in state of absolute cleanliness. *L. Brocq*, iv. A-17.

[It is probably, if not certainly, a parasitic affection. L. Brocq, Assoc. Ed., iv. A-17.]

When on the scalp, accompanied by much itching; scalp washed every other day with warm water containing for every ¼ glassful of water 20 to 60 drops of liquid polysulphide of potassium; hairs separated with a comb and exposed scalp lightly rubbed with a wad of cotton dipped in the solution. During intermediate days following ointment applied: ℞ Naphthol-β, camphor, of each, 4 grains; resorcin, 3 grains; precipitated sulphur, 24 grains; vaselin, 5 drachms. *L. Brocq*, iv. A-17.

Simultaneous use of tannin locally in solution and parts then bathed in a 1 to 1000 permanganate-of-potassium solution the cause of high fever, diarrhœa, intense irritation of the parts. *E. Harnack*, v. A-126.

ELECTRO-THERAPEUTICS.

ALTERNATING SINUSOIDAL CURRENT. Excepting the galvanic current, the only one capable of exact dosage; causes no pain, though contracting muscles; allays suffering in many cases in which galvanic and faradic currents prove inefficacious. *Kellogg*, v. B-3.

Effect of sinusoidal weaker than faradic on muscular contraction. *Larat and Gautier*, v. B-3.

Instrument to register electro-chemical alternating currents. *Paul Janet*, v. B-3.

CATAPHORESIS. Under the influence of the continuous current penetration only occurs below the positive pole, in the direction of the cataphoresis. *Aubert*, v. B-14.

Electrical processes capable of producing electrolytical exchanges (*q.v.*). *Labatut*, v. B-14.

When neuralgias in superficial nerves, cocaine cataphoresis produces immediate relief of pain. *McGuire*, v. B-15.

FARADIC CURRENT. Cutaneous temperature and that obtained by radiation progressively raised as excitation increases in intensity without exceeding maximum, reached before excitation has obtained maximum degree. *L. Lecercle*, v. B-6.

Striated muscle of the heart only responds by initial contraction to electrical excitations when latter have reached a certain frequency, which varies in inverse proportion to their intensity. *Lahousse*, v. B-7.

IN FARADIZATION OF THE BRAIN. Wide-spread effects from excitation of one point of cerebral cortex due to reflex phenomena, as shown by Vulpian, Schiff, and Brown-Séquard. *Bochefontaine*, v. B-7.

Mucous membrane offers a considerable resistance to penetration of faradic current to muscular coat, especially that of stomach. *S. J. Meltzer*, v. B-7, 8.

UNIPOLAR FARADIZATION. One extremity of the wire of induction-coil placed in communication with the earth; other extremity gives off sparks analogous to those of a static electrical machine or Leyden jar. May be used for determining anæsthetic zones. Neuralgia; obstinate headache. *N. Stenberg*, v. B-8.

GALVANIC CURRENT. Constant galvanic current by far the most important form of electricity for medical purposes; feeble strength of current recommended; brain, ½ to 2 milliampères with electrode of 16 to 130 square centimetres; for spine, 2 to 10 milliampères with electrode-surface of 40

ELECTRO-THERAPEUTICS (contd.).
to 130 square centimetres ; long experience. *Julius Althaus*, v. B-18.

Very weak galvanic currents have very pronounced therapeutic action in appropriate action, preferable to more intense currents ; application should not last longer than one minute ; interval of forty-eight hours between *séances*. *Arthur Sperling*, v. B-18.

Strong galvanic currents depress nutrition of tissues and produce structural changes leading to physiological atrophy (20 to 100 milliampères) ; mild currents stimulate nutrition and produce physiological hypertrophy (1 to 8 milliampères) ; negative pole. *Norton*, v. B-18, 19.

STATIC ELECTRICITY. Notwithstanding excessive tension, they allow an extremely precise localization of the excitations. *Rouxeau, Dauly*, v. B-5, 6.

Portion of skin subjected to action of static sparks undergoes variable increase of temperature, which may amount to several degrees. *Duchenne*, v. B-6.

Under influence of static bath tension of pulse increased in 15 out of 28 cases; 4 times diminished; 9 times remained the same. *M. Dignat*, v. B-6.

ELECTRO-DIAGNOSIS. Theory of ascending and descending currents not recognized. The slightest difference between these currents never observed. *Verhoogen*, v. B-9.

Inability to prove exactness of laws of Vigouroux,—*e.g.*, the increase of electrical resistance in hysterical subjects and its diminution in exophthalmic-goitre cases. Lowered resistance in all patients suffering from amyotrophy. In peripheral neuritis curve coincides with amelioration. *Destot*, v. B-9.

Possibility of recognizing periuterine suppurative lesions by the aid of electricity. Information not absolutely reliable. *Pichevin*, v. B-9.

Cases showing the use of electrotherapy for diagnostic purposes. *Apostoli and le Bec*, v. B-9, 10.

MISCELLANEOUS. With non-polarizable electrodes continuous current seemed to arrest growth of bacteria. With polarizable platinum electrodes, organisms destroyed. Cultures previously subjected to electrolysis used to immunize animal, bacteria and toxins destroyed. *Krüger* v. B-16, 17.

Electric light is capable of being made a powerful therapeutic agent. *Cleaves*, v. B-17.

Red light acts directly upon arterial blood; yellow stimulates nervous structures. Effects of blue light in arresting development of bacteria abundantly shown. *G. Meeker*, v. B-17.

[Maréchal showed luminous energy transformed into electrical energy; not through calorific power of light, but by actinism. Transformation takes place in all divisions of the spectrum. These experiments demonstrate the close connection existing between the solar light and natural phenomena, such as terrestrial magnetism, the variations of the magnetic needles, earth-currents, and the absolute importance of light and color in all operations of the universe. APOSTOLI AND GRAND, Assoc. Eds., v. B-17, 18.]

TECHNIQUE—INSTRUMENTS. A static induced current-controller and regulator; most violent muscular contraction without causing pain or shock. *Margaret A. Cleaves*, v. B-19.

Universal apparatus for measuring currents of high and low frequency. *D'Arsonval*, v. B-19.

New aperiodic galvanometer, introduces the use of a mobile galvanometric dial in a magnetic field. *Arnoux and Chauvin*, v. B-20.

New rheostat,—a modification of that of Bergonié. *Henry Bordier*. v. B-20, 21.

Galvano-cautery handle with rheostat; intensity of heat remains equal throughout the entire operation. *Schleicher*, v. B-21.

New gastric electrode,—a flexible metallic spiral which responds to any curve. *Carl Wegele*, v. B-22.

GENERAL ELECTRO-THERAPEUTICS. When parts sensitive to pressure, galvanic current most effective; when pressure grateful, faradic current seemed to be indicated. *A. D. Rockwell*, v. B-22.

Electrical treatment makes cicatrices grow paler and softens adhesions. *Lewandowski*, v. B-22.

In joint disorders continuous current directly through the joint, intensity varying from 40 to 150 milliampères, duration ten to thirty minutes; best results in cases of injury. *Gwyer*, v. B-23.

ELEPHANTIASIS.

Case involving external genitalia in a woman; ablation followed by recovery, microscopical examination showing origin to be an attack of acute gonorrhœa giving rise to chronic inflammation of lymphatic vessels of vulva. *Farner*, iv. A-17.

Case of extensive elephantiasis of posterior region of right shoulder; plexiform neuromata are observed in connection with elephantiasis, both congential and acquired, but especially with the second. Evolution of affection begins by nævus, continues with elephantiasis, and ends with neuroma. *Von Bergmann*, iv. A-18.

Three cases of congenital elephantiasis; pathogenetic condition of elephantiasis may be present before birth of child and process may reach stage of fibrous formation. *Moncorvo*, iv. A-18.

EMPYEMA.

PATHOLOGY. Fatal case of encysted internal empyema of right lung in a boy of 4 years. *Churton*, i. A-79.

SYMPTOMATOLOGY. Case in which clubbing of fingers occurred as a transient symptom. Terminal phalanges enlarged from side to side and in dorso-volar direction; nails abnormally convex, their color natural. *Schon*, i. A-79.

Two cases of pulmonary abscess simulating empyema. *Kauffmann*, i. A-80.

Case of chronic abscess; large cavity in upper part of left lung extending from close to clavicle down to third rib; from time to time it became filled up; then severe fit of coughing, followed by expectoration of purulent matter. No bacilli found. Probably a supraclavicular abscess the site of a blow. *Wallace Anderson*, i. A-80, 81.

TREATMENT. Cases in which pus contains large masses of lymph, or pus, thick and creamy, heal best. Offensiveness of pus does not much influence healing. When negative pressure in the pleura, expansibility of lung and contact of layers of pleura can be induced by simple aspiration and cure effected. Otherwise harm will result from delay. Resecting a piece of rib; free incision of pleura; continuous drainage. *Pollard*, iii. B-1.

[That a pyogenic process is generally secondary to serous effusion militates against the supposition that the streptococcus pyogenes had any part in the primary accumulation, and hence could not enter into the etiological factor of empyema. The presence of these micro-organisms, either with or without decomposition of the pus, characterized by bad odor and a sanious consistence, has not thus far led to any material modification of the surgical treatment. J. McFadden Gaston, Assoc. Ed., iii. B-1, 2.]

Incision far back,—in ninth better than sixth intercostal space. Wounding of diaphragm easily avoided by making incision layer by layer. Lower intercostal space does not retract like the upper; issue of fluid assured in lying position. *Moty*, iii. B-2.

Case in which 8 pints of muco-purulent fluid were withdrawn. *Seagrave*, iii. B-3.

All cases of purulent pleurisy, except those of tuberculosis, should be treated by pleurotomy. *Desmons*, iii. B-3.

In tuberculous cases, radical operation—thoracotomy with resection—if exploratory puncture show bacteria of suppuration. If no bacteria of suppuration, aspiration to relieve pressure and allow lung to expand. If case of long standing, compressed lung inexpansible, palliative measures. *Bäumler*, iii. B-3.

Successful case of double thoracotomy. *Jasinski*, iii. B-3.

Grave fainting spells in the course of treatment after pleurotomy. Complete recovery. *Claudot*, iii. B-3.

In deep thoracic effusions, high temperature attributed to absortion of blood. When pleurotomy decided on, adhesions taken advantage of to make incision at their level without detaching pleura. When no adhesions, direct incision only as last resort. Detachment of pleura to find adhesions and localize diseased point. *Tuffier*, iii. B-3, 4.

Costal trephining simple of performance and harmless. Preferably performed on eighth and especially ninth rib in widest portion, posteriorly seven centimetres from costal angle. Crown of trephine one centimetre in diameter. Several openings may be made, either in same bone or adjacent ribs. *Rey*, iii. B-4.

Immediate advantages obtained by wide opening of thorax; facility of operation; digital exploration of pleura for extraction of exudate and rupture of septa; abundant irrigation; free flow of fluid through drains; facility with which drains taken out and cleansed. Absence of fistula. *Boisson*, iii. B-4, 5.

[The employment of irrigation in the cavity of the chest after the removal of purulent collection by incision or otherwise is a precarious measure. Even sterilized hot water has been attended with marked vital depression, amounting in some cases to collapse. Much more disturbance has occurred from medicated injections of antiseptic fluids when septic conditions appeared to indicate correctives. The introduction of iodoform with glycerin by swabbing over the surface or upon gauze tampons within the pleural cavity is not attended with the inconveniences of general irrigation, and proves more effective in correcting septic development. There is no excuse for irrigation when the purulent discharge has not undergone decomposition, and in this condition other means are more efficacious as well as safer. J. McFadden Gaston, Assoc. Ed., iii. B-5.]

Self-retaining drainage-tube. *Lainé.*

Anæsthetics in tapping the chest dangerous. Use of ice locally generally sufficient. Self-containing silver cannula. *Morton*, iii. B-5.

Cases of empyema occur in seasons during certain periods of the year. *Morgan*, iii. B-5, 6.

Case of empyema discharging by the lung; cure by operation. *Finley*, iii. B-6.

Pleuro-pneumonia followed by empyema. Free drainage; recovery. *Younge*, iii. B-6.

Exploratory puncture; aspiration in children; if re-accumulation, open incision and drainage; pleurotomy in all recent cases in adults; avoidance of general anæsthesia when practicable. *Bonney*, iii. B-6.

EMPYEMA (continued).

Cerebro-spinal symptoms during treatment by irrigation. *Paget*, iii. B-6.

Case in which iodine injections into pus-cavity caused grave syncope. *Allen*, iii. B-6.

Often cause of failure to secure desired results due to incompleteness of operation. Wall of pleural cavity may be lined with deposit of lymph. After resection and thorough douching with plain hot water, curettes with flexible handles used, cavity cleaned, then dried, carefully packed, and treated as large abscess-cavity. *Fulton*, iii. B-6, 7.

After Estlander's operation, introduction into pleural cavity of solution of 30 parts of iodoform to 100 parts of glycerin of great value to hasten arrest of purulent secretion. *Gredinger*, iii. B-7.

Extensive thoracoplasty by Schede's method. Semicircular flap being replaced by vertical incision with two horizontal incisions at the upper and lower ends of the first. *Keen*, iii. B-7 to 10.

[This operation differs from that of Estlander in the removal of the entire chest-wall, this space being covered afterward by the cutaneous flap which has been previously dissected from the other parietal structures. Whether Schede's operation, as modified by Keen in this case, has any advantages over that of Estlander depends upon the condition of the lining membrane of the thorax; and it would be entirely practicable, by Sprengel's method of medicating the cavity, to excite granulation to fill up the space without removing the wall of thickened tissue. J. McFadden Gaston, Assoc. Ed., iii. B-9, 10.]

EMPYEMA IN CHILDREN.

PROGNOSIS. The younger the patient, the greater the risk of fatal termination. The sooner the purulent effusion removed, the quicker the recovery. Danger to life chiefly due to complications,—pericarditis, peritonitis, septicæmia. *Wightman*, iii. B-10, 11.

[The tendency of collections of pus in the pleural cavity to point at the anterior part of the thorax when left to a spontaneous outlet has been clearly demonstrated by clinical observation. The site of least resistance, pointed out by Traub and Marshall, about the space between the attachment of the costal cartilages of the fifth and sixth ribs on either the right or left side of the chest, has given exit to the pus in the cases of two children observed by me, who recovered. J. McFadden Gaston, Assoc. Ed., iii. B-10.]

TREATMENT. Incision and drainage in the majority of cases quite sufficient. Two deaths in thirty-four personal cases. *Morison*, iii. B-11, 12.

Bad treatment to leave case to nature. Aspiration unreliable. Simple incision and drainage better than resection. Resection reserved for the rare cases in which ribs closely approximated. Tube should not be more than two inches long. Should be removed when discharge becomes scanty and serous, otherwise it acts as source of irritation. *Cautley*, iii. B-12, 13.

Operation as soon as diagnosis can be made. Best operation, costal resection. *Schütz*, iii. B-13.

Simple incision will, to a large extent, replace resection in infants and the debilitated. *Coutts*, iii. B-13.

Case of pulsating empyema in a child of 5 years. *Toulmin*, iii. B-13.

In four of five cases elevation of antero-superior portion of thorax,—a positive aid in diagnosis. *Vargas*, iii. B-13, 14.

ENCEPHALITIS.

Separation of the non-suppurative disease most important. Etiology of hæmorrhagic form not always the same. Begins with severe symptoms, but usually runs a favorable course. *Oppenheim*. ii. A-34.

Case of fatal encephalopathy following influenza with absence of all microbes; pus serous and fluid. *Durante*, ii. A-35.

Case of acute hæmorrhagic polioencephalitis due to alcohol. Calcareous infiltration of vessel-walls; areas of hyperæmia and thrombosis. *Boedeker*, ii. A-35.

In a case of poliomesencephalitis lesions most marked in the cervical enlargement of the cord and in the region of the anterior oculo-motor nucleus. Walls of blood-vessels not obviously altered. *Kalischer*, ii. A-35, 36.

Case of a boy showing two forms of hæmorrhagic encephalitis at the same time. *Freyhan*, ii. A-36.

Eight cases of acute encephalitis after influenza, four ending in recovery. *Fürbinger*, ii. A-35.

Acute cases with recovery. Prognosis not so grave as has been supposed. *Frænkel, Kœster and Treitel*, ii. A-35.

ENDOCARDITIS.

PATHOLOGY. Acute ulcerative endocarditis in a dog, produced by the injection of pneumococci. *Michaelis*, i. B-12.

Out of 22 cases, in 8 found diplococcus lanceolatus capsulatus, in 7 the streptococcus pyogenes, in 1 the staphylococcus pyogenes aureus, in 1 the diplococcus lanceolatus with staphylococcus pyogenes albus, and in 3 streptococcus pyogenes with staphylococcus pyogenes aureus. *E. Dessy*, i. B-12.

Fatal cases of rheumatic endocarditis may be examples of mixed infection. In four of six cases diplococcus found in vegetations differing from other micro-organisms. *Leyden*, i. B-12, 13.

Case of infectious endocarditis and septicæmia in which there was extensive multi-

ple neuritis with muscular atrophy. *Lloyd, and Riesman*, i. B-13.

Case of ulcerative endocarditis associated with coarctation of the aorta. Close resemblance to pulmonary phthisis. *T. B. Flint*, i. B-13.

Fatal case exhibiting purpura and latent peritonitis and vegetative endocarditis grafted upon chronic valvular disease of aortic orifice. *Achard*, i. B-13.

TUBERCULOUS FORM. Complex in pathology, tubercle bacilli, toxins, and associated bacteria, all combining to produce the disease. Bacillus acts locally by producing a specific lesion, generally by its deteriorating effect on nutrition. *Teissier*, i. B-13, 14.

Examination of cardiac vegetations of various diseased areas from eleven cases of tuberculosis. In no case was structure like that of tubercle; never revealed tubercle bacilli. Hence any idea of a tuberculosis of the endocardium could not be entertained. *Biondi*, i. B-14.

In certain cases of vegetative endocarditis bacillus of tuberculosis should be considered as responsible for the disease. Only a bacteriological examination can remove all doubts. *Giraudeau*, i. B-14.

SYPHILITIC FORM. Case in which systolic murmur was heard in left second and third intercostal spaces with accentuated second sound. Gummatous formations in heart-muscle found; liver showed marked fibrous changes with remains of gummata. *Israel*, i. B-14.

Case of syphilitic endocarditis causing mitral-valve insufficiency. No marked improvement until patient was put upon iodides. *C. O'Donovan*, i. B-14.

GONORRHŒAL FORM. Case in course of an attack of specific urethritis, with epididymitis and enlargement of the glands in the groin; chill; fever; cyanosis; dyspnœa; loud, blowing systolic and diastolic murmurs over the heart; gonococci in the valves; myocardium containing numerous purulent foci. *Winterberg*, i. B-14, 15.

Three varieties of gonococcus present in vegetations of this affection. *Finger*, i. B-15.

FŒTAL FORM. Case of early fœtal endocarditis constricting the conus arteriosus. *W. P. Northrup*, i. B-15.

Case of fœtal endocarditis of the right heart. *Zariquiey*, i. B-15.

Case of fœtal endocarditis associated with an arrest of development of the interventricular septum. *Railton*, i. B-15.

DIAGNOSIS AND PROGNOSIS. Case of severe rheumatic fever in which there could be felt by the hand a pronounced friction sensation which seemed to indicate pericarditis. Verified by autopsy. *Ewald*, i. B-16.

Death while lesions were still in the primary stage. Modification of the timbre of the cardiac note and a valvular snapping sound, features of the case, diagnostic signs of pre-organic acute endocarditis. *Boisson*, i. B-16.

Careful pathological and bacteriological work of recent years has shown that there is no sharp dividing-line by which benign cases can be separated from the malignant. *Wm. Pepper, A. Stengel*, i. B-16.

Diagnostic value of murmurs in endocarditis generally overestimated. Many systolic apex-murmurs are really due to dilatation of left ventricle and of fibrous ring at auriculo-ventricular opening. *Handford*, i. B-16.

Importance of careful differential diagnosis and guarded prognosis in obscure forms which simulate malarial fever. *G. Dock*, i. B-16, 17.

Prognosis of lesions of endocardium in childhood favorable; asystole transitory. *D. Critzman*, i. B-17.

Rheumatic endocarditis rarely directly fatal, only in late stage. *Leyden*, i. B-17.

TREATMENT. In 300 cases of acute and subacute rheumatism there was cardiac complication in 51 cases. Thirteen received no special treatment; of these, 12 left the hospital with bruit and 1 without. Thirty-eight were treated by repeated blistering over cardiac region and potassium iodide; treatment continued for average of 41 days; 28 left hospital without any bruit and 10 with bruit. *Caton*, i. B-17.

Measures recommended by Caton—blistering over the præcordia and iodide of potassium internally—extolled. *Wm. Russell*, i. B-17.

Cases of malignant form seem to be most benefited by large doses of quinine with arsenic. *Dreschfeld*, i. B-17.

Treatment avails little. Rest, quinine, stimulants, digitalis, nourishing food. For high temperature, sponging, ice-cap, or Leiter's coils to thorax or abdomen. *Tyson*, i. B-17.

Digitalis rarely indicated; aconite and similar drugs should be employed. As soon as acute stage passed, absolutely important to begin digitalis in small doses with great watchfulness. *Horatio C. Wood*, i. B-49.

ENDOMETRITIS.

ETIOLOGY AND PATHOLOGY. Two groups: (1) simple forms resulting from action of poisonous substances, abortion, and so-called exfoliative endometritis; (2) purulent and bacterial forms caused by schizomycetes and protozoa. *Winckel*, ii. F-13, 14.

Pyogenic form most common in puerperæ. Streptococcus pyogenes nearly always an active agent. *Döderlein*, ii. F-14.

In twenty-nine cases of endometritis of body no trace of bacteria by microscopical

ENDOMETRITIS (continued).

examination or cultivation. Disease of mucous membrane not therefore kept up by bacteria in this region. Does not exclude fact that disease of mucous membrane arises from acute septic or gonorrhœal infection. *Bumm*, ii. F-14, 15.

Gonorrhœa of uterus produces an interstitial endometritis. In a number of cases chronic course leads to glandular endometritis followed by inflammatory changes in muscular tissue, which finally lead to hyperplasia of connective tissue at expense of muscular elements. In inflamed mucosa gonococcus demonstrable in greater or less quantity; in many, however, it is not to be detected. Presence of gonococcus in inflammatory infiltration of muscular tissue probable, but not yet proved. Puerperium very frequently leads to extension of gonorrhœal invasion. *Wertheim*, ii. F-15.

Fetid endometritis in aged women may be due to recurrence of simple endometritis of earlier life or necrotic process accompanying elimination of fibromyomata from uterus. Appears from five to fourteen years after menopause. *Maurange*, ii. F-15, 16.

DIAGNOSIS. Differential diagnosis between catarrh limited to cervix and cervico-corporeal catarrh: (1) thin, purulent discharge indicates catarrh of corporeal endometrium; (2) cervical catarrhs seldom occur in multiparæ; (3) reflex symptoms point to trouble of mucosa; (4) cervical catarrhs rare in virgins, cervical and corporeal catarrh still more so. *Van Tussenbroek and de Leon*, ii. F-16.

Endoscopy in studying endo-uterine affections; technique not difficult. *Bumm*, ii. F-16, 17.

[It is certainly doubtful whether the examination of the uterus by the endoscope affords information that justifies the danger of carrying infection to the uterine cavity. E. E. Montgomery, Assoc. Ed., ii. F-17.]

Cervical endometritis exhibits anomalies of secretion with reddening and swelling of mucosa. Gradual narrowing of os; retention of secretion; contraction. In consequence of retention, atrophy of mucous membrane. *Ruge*, ii. F-17.

TREATMENT. Dilatation and curettage of uterine cavity; thorough application in 297 cases of 50-per-cent. solution of chloride of zinc in worst cases, and solution of iodized phenol in milder cases. Sterilized drain then inserted through internal os; patient put to bed. Repetition of cauterization with milder solution, if thought best, usually resulted in cure in two or three weeks; 197 cures, 94 improvements. Best hope for permanent cure impregnation and normal delivery. *Mundé*, ii. F-17.

Treatment by chloride of zinc abandoned because tendency to produce cicatrization of surface. Bichloride of mercury internally, ¼ grain a day, in divided doses. Change to iodide of potassium weekly. *A. Jacobi*, ii. F-17.

Electricity effective; faradization and negative pole; galvanic current. In stage of infiltration, positive pole of galvanic current and zinc electrolysis, with faradization. In stage of induration, dilatation, curettage, and gauze packing more satisfactory. *Goelet*, ii. F-17, 18.

In hospital cases, rapid dilatation, curettage, application of pure carbolic acid and iodine. In office, intra-uterine galvanism. Results from electricity about as good as operative treatment. *Lapthorn Smith*, ii. F-18.

Carbolic acid most efficient and safest application. Does not burn deeply enough to destroy submucous tissue. Not good practice to make traction upon organ and pack it every other day. *A. P. Dudley*, ii. F-18.

Iodoform-gauze packing does not drain at all. *H. J. Boldt*, ii. F-19.

Term "packing" a misnomer. Tight packing only indicated in certain conditions to stimulate contraction of uterus. *Goelet*, ii. F-19.

Prevailing opinion of prominent gynæcologists is that introduction of gauze or drain into non-puerperal uterus for drainage unnecessary and possibly open to objection. While presence of pad in flabby septic uterus after curetting may produce contraction, still it acts as an obstacle to escape of septic discharges. *Coe*, ii. F-19.

Sixty-five cases of endometritis fungosa treated by curetting; 92.2 per cent. completely cured; 13.8 per cent. much improved. Should be performed with patients in Sims's position. *Hans Vogelbach*, ii. F-19.

Regeneration of endometrium after curetting varies widely, according to manner in which operation performed. Where there is marked glandular hyperplasia, early recurrence apt to follow most vigorous scraping unless raw surface cauterized at once. When liquor ferri applied after curetting, regeneration of epithelium delayed. *R. Werth*, ii. F-19.

Mucosa completely reproduced in fifteen days as a minimum limit. *Bossi*, ii. F-20.

Possible untoward results from curetting: Production of abortion; antiseptic diseases; rupture of a collection of purulent matter, encysted; pyosalpinx; uterine atresia; most frequent accident, perforation of uterus. *Pichevin*, ii. F-20.

Case in which perforation with curette ended in death. *Raffay*, ii. F-20.

[I have seen the uterus punctured in a number of cases and in none of them have any abnormal symptoms resulted. E. E. Montgomery, Assoc. Ed., ii. F-20.]

Condition of uterus may be such as to render perforation extremely easy; curette may merely discover a perforation. *Auvard*, ii. F-20.

Case in which curette went through anterior wall of uterus. Recovery. Unclosed rent found at the base of one of nodules on anterior wall; uterus almost as thin as paper. *Lawson Tait*, ii. F-20.

Greatest danger not perforation, but salpingitis and forcing of liquid into peritoneum. Worst procedure imaginable is curetting followed by injection. *Landau*, ii. F-21.

Case in which curetting followed by appendicitis without general peritonitis. *Monod*, ii. F-21.

Four cases of rupture of uterus out of 100 cases of curetting. *Crickx*, ii. F-21.

Treatment by resorcin medicated steam, 5-per-cent. solution, at temperature from 104° to 140° F.; slight dilatation of canal required. *Sordes*, ii. F-21.

In the hæmorrhagic form intra-uterine electrode composed of zinc freely amalgamated with mercury. *G. B. Massey*, v. B-12.

ENTERIC FEVER. See Typhoid Fever.

ENTERITIS, STREPTOCOCCIC.

Acute and typhoid forms. Of acute variety three forms: 1. Sudden, intense, choleriform, and limited to digestive tube. 2. Complicated by peritonitis. 3. Generalized form engendering syndroma of acute pyosepticæmia. Differential of choleriform enteritis and cholera only established bacteriologically. *Eguet and de Cérenville*, i. D-37, 38.

Four epidemics due to unboiled milk coming from cows suffering from mastitis. *Holst*, i. D-38, 39.

ENURESIS.

Cause purely mechanical,—pressure of abdominal organs. Contained urine pressing on orifice of urethra corrected by placing pillow under child's pelvis. Very low pillow under the head. *Stumpf*, i. E-39.

TREATMENT. Mechanical: Meatus occluded by collodion, removed in morning; or elastic bag introduced into rectum or vagina. [The practical applicability of this method is not easy to understand. A. Rubino, Assoc. Ed.] Lifting the foot of bed at night. Hygienic: Liquids ingested to be limited, none being taken with evening meal; cold perineal douches; child awakened during night. Sphincter educated by retaining urine as long as possible during the day. Moral treatment: Hypnotic suggestion excellent in a number of cases. Medical: Belladonna and atropia to full physiological effect; strychnia in full doses; antipyrin, chloral, and bromides when sensitiveness of bladder. Electrical: Constant or faradic current directly to sphincter. Massage of sphincter by introduction of finger into rectum. *Chéron*, i. E-39, 40.

In a case in which all remedies had failed good results obtained with ammoniacal sulphate of copper (3 grains to ½ ounce of water) 3, 4, or 6 drops twice a day. *Kelaiditis*, i. E-40.

Quinine physiological remedy for enuresis when circumcision fails. *Rowland*, i. E-40.

Unpleasant smell emitted by persons suffering from incontinence of urine covered by 10-drop doses of turpentine in milk or water three times a day; contra-indicated in ulcer of stomach, gastric catarrh, and nephritis. *Emminghaus*, i. E-40.

Case in a woman in which contraction of bladder the cause; successfully treated by graduated fluid dilatation. *Mayo Robson*, ii. F-114.

Gersung's method for females: Incision around external orifice at distance of 2 millimetres; urethra drawn out 2.5 centimetres; torsion of 270 degrees; fixation by silk sutures. *J. Glas*, ii. F-114.

Vertical incisions, both sides of female meatus, transforming vertical wound into horizontal one, sutures through upper and lower end of incision bringing margins into approximation. Fine stitches close figure-of-eight opening. *G. Blech*, ii. F-114, 115.

EPIDIDYMITIS. See Testicles, Diseases of.

EPILEPSY.

ETIOLOGY AND PATHOLOGY. View that continuance of bilateral convulsions after ablation of the motor cortex from one hemisphere is proof of independent action in infra-cortical centres is incorrect, because bilateral removal of cortex wholly prevents the occurrence of a fit. *Weitting*, ii. A-54.

Late epilepsy that which develops after 30 years. Of 120 cases, only 20 belonged to this category. Never occurs except when there is an hereditary predisposition. Early dementia the rule. *Maupaté*, ii. A-55.

Epileptic attacks can be produced in adult animals by excitation of cortical centres. In case the basal regions participate it is mainly in producing tonic contractions. Under mechanical irritation of pons, cerebral concussion (pons and medulla) can also cause epilepsy. In these the cortex takes part in the development of the attack. *Bechterew*, ii. A-53.

In the brains of twenty-six epileptics a distinct hypertrophy of the cortical neuroglia-fibres lying between the pia mater and the outermost layer of tangential nerve-fibres always found. *Bleuler*, ii. A-53.

In view of neuroglia-sclerosis found in the

EPILEPSY (continued).

brain-cortex, it is not possible to attribute epileptic attacks to astigmatism or errors of refraction. Some reason for believing that astigmatism is commoner in epileptics; a mark of degeneracy rather than an etiological cause. *P. C. Knapp*, ii. A-54.

Case of unilateral epileptiform seizures in which not only had the cortical motor centres lost all inceptive function, but the transmissive function of the pyramidal tracts of the affected side was also in abeyance. *Von Monakow*, iii. A-54.

Three cases, all above the age of 63, with a history of epileptiform attacks; it was possible to bring on attacks precisely similar by compression of the carotids. Observations seem to prove that senile epilepsy depends on circulatory disturbances due to diseases of the heart or vessels. *Naunyn*, ii. A-54.

Influence of extreme slowness of pulse in causation of epileptiform attacks; case related in which pulse was regular, but became slower and slower, with faintness, then associated with epileptiform attacks. In all recorded cases pulse had general tendency to be very slow,—from 20 to 30 to the minute. *Bristowe*, ii. A-55, 56.

In case of epileptic attack with transitory slow pulse patient had intense dyspnœa without stethoscopical signs, heart being perfectly calm; no dicrotism, no irregularity of pulse, no venous pulse; five days after attack patient well and pulse up to 80. *Riolacci*, ii. A-56.

Case of diabetic epilepsy representing class of cases in which attack is due to acute intoxication. *G. W. Jacoby*, ii. A-56.

Epilepsy by intoxication always preceded and accompanied by gastro-intestinal symptoms. When accompanied by cortical hemiplegia there often follows, with the ordinary epileptic dementia, a kind of spasmodic tabes, or cerebral diplegia. *Voisin and Petit*, ii. A-56.

All facts regarding inheritance are below the truth. In series of 1450 cases analyzed inheritance traceable in 44.5 per cent. *Gowers*, ii. A-57.

Evening preceding an attack of epilepsy toxicity of the urine greatly diminished, but immediately after attack it increases markedly. *Obreja*, ii. A-57.

Amount of urea excreted far below the normal average of 33.19 grammes per twenty-four hours, average being only 11.93 grammes. Urine passed after a fit presents a higher specific gravity and a larger amount of urea. *J. Nelson Tecter*, ii. A-57.

Malformation of the genital organs, infantilism, and feminine appearance in an epileptic. *Van Brero*, ii. A-58.

Case of epilepsy dating back to age of 4 years. Walking difficult; contractures and hemiplegia. Atrophy of left hemisphere, which weighed five ounces less than the right. *Lvoff*, ii. A-58.

SYMPTOMATOLOGY. In cases in which spinal-epilepsy clonus exists trepidation of the patella can almost always be obtained. Patient is put in dorsal decubitus with lower limbs extended; patella is suddenly lowered, parallel to the axis of the limb, by pressing on its upper border. Sometimes it is necessary to repeat the manœuvre two or three times. The trepidation obtained consists in oscillation from above downward and from below upward. *Cénas*, ii. A-58.

Undescribed form of epilepsy of infancy. Access sudden and instantaneous; sudden pallor, mydriasis, hebetude, and immobility. *Ferrannini*, ii. A-59.

Case in which patient recovered after having had, during twenty-one days, 3205 fits. *J. W. Alexander*, ii. A-59.

A dreamy state of consciousness rather than total or partial amnesia constitutes most significant feature of epileptic psychoses. *Siemerling*, ii. A-59.

Erroneous belief that loss of consciousness during the epileptic attack is necessarily complete. Instances to the contrary. *Bombarda*, ii. A-59.

Epilepsy is not, by itself, a reason for irresponsibility, but there might occur with it irresistible impulsions, producing absolute irresponsibility, even with perfect consciousness of the act. *V. Parant*, ii. A-59.

Special form of baldness which follows epileptic attacks. Manifests itself in the form of patches, generally multiple, of a rounded contour. *Ch. Féré*, ii. A-60.

TREATMENT. Flechsig's plan gives patients a gratifying respite, is soothing and quieting to irritable patients, and exhilarating to those suffering from depression, and enables them to recuperate physically. Desirable to repeat the treatment at intervals of two or three months. *Isabel M. Davenport*, ii. A-60.

Results of Flechsig's opium treatment do not justify its use, except in cases where other forms of treatment have been tried and found to be entirely insufficient. *L. P. Clark*, ii. A-60.

℞ Adonis vernalis, ½ drachm; water, 6 ounces; bromide, 2 drachms; codeine, 2 grains. M. A tablespoonful four, six, or even eight times a day. *Bechterew*, ii. A-60.

After using this treatment in twenty-five cases for five months, complete cessation from attacks not observed. Especially useful in those cases in which heart's action is weak. *Guicciardi*, ii. A-60.

In all of ten cases distinct diminution in the frequency and severity of attacks. *Lui*, ii. A-61.

Addition of codeine not an advantage. Adonis acts as a stimulant to the heart and increases the flow of urine. *Taby*, ii. A-61.

Importance of continuing bromides even in cases which are apparently cured. *Ch. Féré*, ii. A-61.

Bromide of strontium 10 grains and potassium bromide 10 grains, three times daily; on plea that combination of bromides acts more favorably than any one. *Anthony Roche*, ii. A-61.

Those who have tried this drug in 7-grain or similar doses will get very different effects with 30-grain doses, especially if eserine is continued with it. *W. E. Stainton Stanley*, ii. A-61.

When symptoms of bromism, acne, etc., troublesome, ethylene-bromate, which acts at least as well as the bromides, can be advised; disagreeable in taste and smell. Belladonna seems to work better in the form of Trousseau's pills than as atropine. Nothnagel combines zinc oxide with belladonna, former in increasing doses with good results. Moeli has advised alternation of atropine and bromides as very effective. *Wulff*, ii. A-61, 62.

Belladonna may, in grave cases, bring about a prolonged suspension of attacks analogous to that produced by bromides. *Ch. Féré*, ii. A-62.

Borax a useful remedy against convulsive attacks of an epileptic character. *G. Angelucci and A. Pieraccini*, ii. A-62.

Extensive observations to show that, while in certain cases benefit is conferred, in most cases the disadvantages are such as to more than counterbalance the slight benefits. *Féré*, ii. A-62.

On the whole, borax of no value in epilepsy. *Lui and Guicciardi*, ii. A-62.

Solanum Carolinense in 17 cases; 12 showed more or less improvement; other 5 (2 of them organic) showed no improvement. Dose ordinarily recommended (10 to 15 drops of fluid extract) too small; teaspoonful or more four times daily often needed to secure results. *C. S. Potts*, ii. A-62.

Unquestionably has an influence over the disease, although mild. Its toxic effects are *nil*. *C. F. Barber*, ii. A-62.

Fairly large doses more likely to be of use. No disagreeable effects. *E. C. Carr*, ii. A-62.

One drachm of the fluid extract four times a day in one case, gradually increased to ½ ounce, when fits became less frequent; 1 ounce three times daily, fits ceased. The remedy still being taken, 4 drachms once a week. *H. G. Mackid*, ii. A-62, 63.

Solanum tried in eleven epileptic insane patients; scarcely any line of treatment heretofore employed has given such unfavorable results. *Bondurant*, ii. A-63.

Apparent great benefit from the administration of renal extract, fits disappearing during the treatment and returning when drug withheld. *Bra*, ii. A-63.

Chloralose in doses of from 1¾ to 15½ grains, preferably given in solution in boiling water. Sedative effect in from 15 to 20 minutes after taking the drug. *Hazkovec*, v. A-53.

Bromethylformin may be employed in much larger doses than ordinary bromides without causing furunculosis. *Lacquer*, v. A-43.

Necessity of looking after skin while a course of bromides is followed. Antiseptic baths remove germs present in skin-glands. Corrosive sublimate best antiseptic if eruption or ulceration has not already occurred. If eruption, preference for permanganate of lime ⅛ to ½ grain per quart of water, followed by lotion of tepid water or solution of sodium bisulphite. *Féré*, v. A-43.

SURGICAL TREATMENT. Conclusions based upon an analysis of seventy cases, which reflect the present general consensus of opinion among neurologists. (See text.) *Mason*, ii. A-63, 64.

Operation only useful when lesion of cortical motor centres. Extirpation of apparently healthy portions of brain strongly disapproved. *Von Bergmann*, iii. A-37.

Operation of doubtful utility except in cases of traumatic origin or well-marked focal or Jacksonian form. *Wheaton*, iii. A-37.

Usually classification of epilepsy impractical surgically. Indications to be determined by careful analysis in each case. *Eulenberg*, iii. A-37.

In Jacksonian or traumatic types, though definite cure cannot be guaranteed, mitigation of symptoms may be assured. *Manley*, iii. A-37, 38.

Recommendable in selected cases of symptomatic epilepsy. *E. Foster*, iii. A-38.

Successful cases of trephining. *Angelucci, Butlin, Lusk, Ferguson, Colvin, Leyden, Madison Taylor, Deschamps, Frey, Hallager*, iii. A-38, 39.

Cases much improved by trephining. *Ashhurst, Marsh, Eskridge, Anderson*, iii. A-39.

No evident improvement after trephining. *Ashhurst*, iii. A-38.

Scafi's operation. Linear incision ten centimetres long in soft parts and skull parallel with upper extremity of fissure of Rolando. Soft parts then united. Eight days later horseshoe-shaped incision, the two extremities of which meet the ends of first incision. *Postempski*, iii. A-39.

By beveling chisel on one side only, slanting blows possible. Temporary overlapping sutures through scalp *en masse* prevents hæmorrhage. Case showing that inner flap may heal promptly, without adhesions to parts beneath, with smooth inner surface, and that the dura, after incision and suture with drainage through lateral ventricle, passing through the suture for two or three

EPILEPSY (continued).
days, may heal without adhesion to bone or pia. *G. Woolsey*, iii. A-39, 40.

Autopsy in case of epilepsy and hemiplegia, trephined, in which large gumma was found. No lesion of psychomotor zone. *Faguet and Lowitz*, iii. A-40.

Celluloid plate (Frænkel's method) applied to close gap in the skull after operation for traumatic epilepsy. Periosteum and other scalp-tissues stitched over plate; drainage-tube for eight days. The brain formerly caught in narrow hole now entirely free from pressure. *Willy Meyer*, iii. A-40.

Rubber dam as covering for dressing should not be used; checks evaporation, becomes soaked with discharge, and a nidus for micro-organisms. Dry and freshly-sterilized gauze most reliable and satisfactory. *L. Freeman*, iii. A-40, 41.

EPISPADIAS. See Penis, Diseases of.

EPITHELIOMA. See Tumors.

ERGOTISM.

Excellent results in two cases obtained with a 1-per-cent. alcoholic solution of nitroglycerin, 15 drops; distilled water, 6 ounces; 1 tablespoonful three times a day. Nitroglycerin must not be given in too large doses; transforms hæmoglobin into methæmoglobin. *Schwartz*, v. D-11.

ERYSIPELAS.

Incubation period studied in forty-one cases. An incubation of a few hours only much more common than is generally stated in standard works, although incubation may extend to three weeks. *H. Roger*, iv. A-19.

Case of a young woman in whom there developed peculiar black abscesses and furuncles, about 650 showing themselves in fifteen months in all parts of the body, including scalp. Abscesses, limited to skin and subcutaneous tissues, varied in size from that of a millet-seed to that of a large nut. Formation of gas in the centre of abscess. *Zeller and Arnold*, iv. A-20.

ETIOLOGY AND PATHOLOGY. Among erysipelas patients attacks of erysipelas occurring after an attack of anger frequently noted. *Chantemesse and Sainton*, iv. A-20.

Among varieties of erysipelas there is one recurring at each catamenial period; should be called periodical catamenial erysipelas. *R. Massalongo*, iv. A-20.

Seven cases of erysipelas of the face and head following otitis, six of which were acute or chronic otitis media. *Hessler*, iv. A-21.

In ten cases of erysipelas a distant lesion, apparently due to the same exciting cause as erysipelas, brought about by a secondary infection with the pneumococcus. Streptococcic broncho-pneumonia rare in erysipelas. *Roger*, iv. A-21.

Case of psychical disturbances coming on at termination of period of evolution. *Kronpetzki*, iv. A-21.

Rabbits may be immunized against streptococcus by injection of attenuated cultures into the peritoneum, their serum possesses preventive and curative properties against erysipelas induced in the rabbit and natural erysipelas in man. *Gromakowsky*, iv. A-21.

Two cases. General infectious nature of erysipelas and its dangers should always be borne in mind. Accidental erysipelas has a curative influence upon granulating surfaces, but its use in the treatment of ulcers would be unjustifiable. *Selva*, iv. A-22.

TREATMENT. Thirty-two cases of erysipelas of face and other parts treated with compresses saturated in absolute alcohol; excellent results. Compresses must be covered with some impermeable material. *Langsdorff*, iv. A-22.

Ichthyol a specific remedy, either as a mixture of sulphichthyolate with equal parts of olive-oil or a vaselin salve of the same strength. Applications should include adjacent skin about one inch broad, and be repeated twice or thrice daily, continued for three or four days after the temperature has returned to standard. Parts kept constantly covered with cotton-wool. *Nitchoff*, iv. A-22.

Mixture of 3 parts of ichthyol to 10 of traumaticin from which excess of chloroform afterward removed; abortive. Part circumscribed by band of traumaticin extending one inch beyond patch on the face, two inches wide on the body. *Juhel-Renoy*, iv. A-22.

Eight cases treated with ichthyol; average duration little less than four days; five of the eight cases were facial. Following formula used: ℞ Ichthyol, 2½ drachms; collodion, 1½ ounces. Applied every three hours, always commencing application about one inch beyond the line of demarkation between healthy and inflamed skin. *W. H. Delrett*, iv. A-22.

Ichthyol efficacious in every form of erysipelas; superior to all other remedies. *Zelewsky*, iv. A-23.

The soapy, alkaline, cleansing properties of the kretol make it especially valuable. *McGillicuddy*, iv. A-23.

Mercurial ointment used in about 100 cases of every degree of severity, 1 to 4 drachms rubbed in and two finger-breadths beyond. All the cases recovered. *L. Tcherné Khovsky*, iv. A-23.

ERYTHEMA.

ETIOLOGY. Erythema produced by antipyrin may assume most varying appearances. *L. Brocq, Dubreuilh, Martin Brasch*, iv. A-23; *Presse Médicale*, iv. A-24.

Indelible pigmented patches following antipyrin erythema. *Morel-Lavallée*, iv. A-25.

Case following the use of digitalis. *Friedheim*, iv. A-25.

Case of aggravated iodide rash induced by local applications of iodine liniment. *D. Robertson Dobie*, iv. A-25.

Crustaceous pustulo-fungating eruption due to potassium bromide. *Elliott*, iv. A-25.

Folliculitis as result of external use of mercury; hard, red nodules separated by normal or slightly-reddened skin. *O. Rosenthal*, iv. A-26.

Accidents induced by hair-dyes; lead or nitrate of silver used until recently replaced by paraphenylenediamine hydrochlorate; apt to cause accidents; typical example. *Cathelineau*, iv. A-26.

EXALGIN, POISONING.

Case of poisoning from half an ounce dissolved in about three ounces of water. Anæsthesia; dyspnœa. Convulsions, cyanosis, then emission of urine resembling that of persons poisoned by carbolic acid. Phenomena analogous to those of uræmia. Exalgin, which is but moderately soluble, had been only partially absorbed. The symptoms resembled those of acetanilid. In above case injections of caffeine, electrization of phrenic nerves, emetic, bleeding. *Weber*, v. D-11.

Case in a woman under treatment for severe asthma and consequent insomnia. Five grains given by a friend. Rapidity of onset of toxic effects. Evident danger in giving even moderate doses of exalgin—a respiratory poison—to asthmatics. *Crookshank*, v. D-12.

EXOPHTHALMIC GOITRE. (Graves's Disease; Basedow's Disease.)

ETIOLOGY AND PATHOLOGY. Principal theories of the disease: (1) that it is due to localized lesions of the medulla oblongata; (2) that it is of toxic origin and that the existence of the poison is in some way related to disease of the thyroid gland; (3) that it is a neurosis. Medulla theory has but little to support it. *Putnam*, iv. E-6.

Toxic origin: Total thyroidectomy causes death of animal, whatever its habits or the nature of its food, due to accumulation of one or more poisons in the system. Thyroid gland secretes a substance capable of decomposing or neutralizing toxic substances developed by tissue change in the body, storing them up in cells where they are neutralized, rendered harmless, and then eliminated. *Notkine*, iv. E-7.

Thyroidectomy, when total, brings on, two to four days later, dystrophic and serious nervous phenomena almost inevitably causing death of the animal, due to direct autointoxication, which affects principally the central nervous system. *De Dominicis*, iv. E-7.

Experimental thyroidectomy in the dog. Formation in organism of toxins which at first have no other effect upon general condition than that they act upon kidneys. Death due to retention in organism of toxins of which renal cells no longer allow the elimination. *Rosenblatt*, iv. E-7, 8.

Central origin. After division of restiform bodies in young rabbits all phenomena of exophthalmic goitre develop, including exophthalmos, enlargement of thyroid, and tachycardia. "Thyroprotéide," isolated by Notkine, a toxic agent which accumulates in the blood, excess of which gives rise to myxœdema. *Brissaud*, iv. E-8.

In nervous individuals, especially women, pregnancy, puerperium, infectious diseases, mental troubles, shock, and anxiety play a considerable part in inducing its onset. *Haskovec*, iv. E-8.

In individuals predisposed to exophthalmic goitre it may result from pathological conditions of the pelvic organs; while, conversely, disturbances of these organs may be directly due to the disease itself. Pregnancy, hæmorrhages, and operations, especially castration, may be etiological factors. *Theilhaber*, iv. E-8.

Case in which exophthalmic goitre began with pregnancy and showed slight improvement after confinement. *Siguier*, iv. E-9.

Hypersecretion theory. The thyroid body has a very great secretory activity; the product of secretion, when excessive, exerts an action upon the nervous system which manifests itself in symptoms analogous to those of exophthalmic goitre. An autointoxication through retention of toxic substance. *Kocher*, iv. E-9. 10.

A thyroid graft first becomes tumefied, then returns to embryonic condition, and finally begins to undergo regeneration, complete in about three months; become permanent organs, having ordinary morphological character of thyroid body. *Christiani*, iv. E-10.

In congenital absence of thyroid gland consequences do not arise till the feeding is no longer exclusively milk. *Moritz*, iv. E-10.

Changes produced in the blood by the secretion of a specific watery matter by follicles of goitrous gland. In exophthalmic goitre amount of secretion of the gland increased and has a definite toxic effect. *Eulenberg*, iv. E-10.

Case showing hæmorrhage in the floor of the fourth ventricle. Blood of three patients showing venous character; number of red corpuscles reduced to 3,590,319; blood disintegrated sooner than healthy blood. *Kimura*, iv. E-11.

Presence of thymus noted too often in ex-

EXOPHTHALMIC GOITRE (contd.). ophthalmic goitre to be merely an accidental occurrence. *Hektoen*, iv. E-11.

Anger presents same characteristics and produces same troubles as exophthalmic goitre. A violent fit of anger has been the starting-point of exophthalmic goitre in some cases. *Potain*, iv. E-11.

Patient suffers from exophthalmic goitre as soon as delirium cordis and tremor are present. All other symptoms consecutive and of secondary nature; they simply confirm the diagnosis. *Lemke*, iv. E-11.

Case of exophthalmic goitre, acromegaly, and glycosuria attributed to a vasotrophic neurosis,—herpetism. *Lancereaux*, iv. E-12.

Very definite form of mental change, only lacking in one of twenty cases, characterized by extreme motor restlessness, extreme insomnia, and occasional sensorial illusions of sight and hearing. *Maude*, iv. E-12.

Case of exophthalmic goitre, with monocular symptoms and unilateral thyroid hypertrophy following worry and excitement from domestic causes. *Fridenberg*, iv. E-12.

Case of exophthalmic goitre in a child, aged 11 years. In infancy it had been a thin, bottle-fed baby, and suffered from marked enuresis, pertussis, measles, varicella, and scarlet fever. *McKee*, iv. E-12.

Co-existence of exophthalmic goitre and scleroderma. *Jeanselme*, iv. E-13.

Four cases cured of exophthalmic goitre by the removal of nasal polypi. *Spicer*, iv. E-13.

Case of exophthalmic goitre in which there was no enlargement of the thyroid gland, but a visible pulsation of carotid arteries, noticeable at six feet from the patient. *Donellan*, iv. E-13.

Of 58 patients, 74 per cent. women. Of 51 cases 29 had neuropathic family history, in most cases on mother's side. *Pässler*, iv. E-13, 14.

The Bryson symptom, although present in many cases, in nowise pathognomonic of this affection, or even an important sign. *H. T. Patrick*, iv. E-14.

Case of myxœdema and one of exophthalmic goitre in sisters. Striking contrast between symptoms of the two diseases. *Oppenheimer*, iv. E-14.

TREATMENT. Thyroidectomy; operation exceedingly bloody; ligatures alone insufficient, gauze pressure necessary. Two weeks after operation pulse very rapid, but protrusion of eyes diminished within twelve hours. *McCosh*, iv. E-15.

Grave symptoms of suffocation and compression arising from tumor relieved by removal of one lobe of gland; trembling and palpitations disappeared; exophthalmos diminished considerably. *Tuffier*, iv. E-15.

Case operated for occlusion of intestines due to large fibroma; signs of exophthalmic goitre rapidly disappeared after operation. *Picqué*, iv. E-15.

Two cases of abdominal surgery followed by almost complete disappearance of goitre. *Bouilly*, iv. E-15.

Case in which 1½ to 2 drachms of sheep's thyroid daily before meals, small amounts of gland daily, then omitting use for ten days every three weeks, caused all symptoms to disappear except slight swelling and slight exophthalmos. *Voisin*, iv. E-15.

Remedy aggravated symptoms of disease. *Dreyfus-Brisac and Béclère*, iv. E-15.

Good results from fresh thymus glands taken from sheep, finely minced, and spread between slices of bread and butter. Much larger quantities could be exhibited without bad consequences. *Miculicz*, iv. E-15.

Three cases in which diet of thymus produced good results,—12 to 15 (5 grains) tabloids given daily. *Cunningham*, iv. E-16.

Good results from salicylate of soda in four cases. One to one and one-fourth drachms every twenty-four hours, in four doses, in one pint of fluid to prevent intolerance. *Chibret*, iv. E-16.

Greater number of successes to be attributed to electrical treatment conjoined to tonic treatment of nervous system. Galvanic electricity applied to pneumogastrics and cardiac sympathetics, positive electrode on nape of neck, negative pole on præcordial region. *Regnier*, iv. E-16.

EXSTROPHY OF THE BLADDER. See Bladder, Diseases of.

EXTRA-UTERINE PREGNANCY. See Ectopic Gestation.

EYE, DISEASES OF. (See also Lids, Diseases of; Orbit, Diseases of; and Retina, Diseases of.)

CHOROID, DISEASES OF. Senile chorioretinitis of macular region; entire fundus dotted with many yellowish-gray, round spots; larger ones in macular region. *Wiegmann*, iv. B-85.

Case of exudative choroiditis associated with pediculated, polypoid, granulative tumor of choroid. *Ginsberg*, iv. B-85.

Case of purulent iridochoroiditis in man with stricture of urethra. *Trousseau*, iv. B-85.

Rare case of endothelial sarcoma. *Parisotti*, iv. B-85.

Microscopical study of two eyes with recurrent hæmorrhages occasioned by melanosarcoma of iris and choroid. *Hippel*, iv. B-86.

Cases of sarcoma of choroid. *Story and Graves*, *Buller*, iv. B-86.

Cases of tuberculosis of choroid; lesions may occur in periphery of fundus. *Carpenter*, iv. B-86.

CONJUNCTIVA, DISEASES OF.

BURNS. Burns of conjunctiva at end of first stage treated like any solution of continuity; separate conjunctiva from sclera round about burn; bring edges together with stitches; if this is impossible, skin-grafts. *Bryant*, iv. B-53.

CONJUNCTIVITIS. Conjunctivitis in Colombo most frequent in May; least in October; females almost exempt; occupation a predisposing cause. *Ragasingham*, iv. B-58.

Twenty-three cases of rare form of recurrent ophthalmia; bulbar conjunctiva coarsely injected, episcleral vessels likewise; photophobia and pain on movement of eyes, spasm of accommodation; associated with gout, rheumatism, and malaria; salicin and quinine delayed attacks. *Fuchs*, iv. B-60.

Mild cases of conjunctivitis with catarrh of sac and coryza, soon after birth, are due to pneumococcus; simple washing best treatment. *Parinaud and Morax*, iv. B-60.

Comparatively light conjunctival diseases with croupous deposits also caused by diphtheria bacillus, involving the cornea. *Schirmer*, iv. B-60.

Cases of diphtheritic conjunctivitis with successful serum treatment. *Morax*, iv. B-60.

Five cases of diphtheritic conjunctivitis healed without scar. *Uhthoff*, iv. B-60.

Case of diphtheritic conjunctivitis treated with antitoxic serum without much success. *Gayet*, iv. B-60.

Gravity of phlyctenular affections; active treatment required; copious irrigation 1 to 5000 mercury-bichloride solution. *Meiquet*, iv. B-61.

Case of chronic recurrent membranous conjunctivitis finally ending in panophthalmia. *R. H. Derby*, iv. B-56.

Irritating remedies, especially silver nitrate, harmful in pseudomembranous conjunctivitis. *Valude*, iv. B-57.

Case of pseudomembranous conjunctivitis in newborn child, due to streptococcus, treated by Roux's serum; total loss of both corneæ. *Darier*, iv. B-56.

Etiological factor in acute contagious conjunctivitis a small, unknown bacillus. *Weeks*, iv. B-57.

Two cases of gonorrhœal ophthalmia. *Campbell*, iv. B-57.

TREATMENT. Great importance of reaching all parts of the conjunctiva with 3-per-cent. nitrate-silver solution in gonorrhœal ophthalmia. *Abadie*, iv. B-57.

Purulent ophthalmia and dacryocystitis successfully treated by potassium-permanganate solutions, 1 per cent. to 10 per cent. Case of diphtheritic conjunctivitis treated by crude petroleum-oil. *Vian*, iv. B-57.

Purulent conjunctivitis treated by prolonged subpalpebral irrigations; silver nitrate, potassium permanganate; occasionally mercury cyanide, sublimate. *Vacher*, iv. B-57.

When cornea implicated quinine sulphate, 4 grains to 1 ounce, with smallest possible amount of sulphuric acid; to be used in intervals, but not as a substitute for silver nitrate. *Tweedy*, iv. B-58.

CONJUNCTIVITIS OF INFANTS—OPHTHALMIA NEONATORUM. Propensity of newborn infants to rub their eyes with their fists; source of contagion—face and hands, as well as eyes—to be cleansed at birth. *Ayers*, iv. B-54.

Mild form of conjunctivitis in newborn; little pus, much lachrymation, moderate palpebral injection; pneumococcus. *Parinaud*, iv. B-54.

Study of forty cases of ophthalmia neonatorum; average duration of gonorrhœal cases, fifty-three days; average duration of non-gonorrhœal cases, thirty-six days. *Francisco*, iv. B-55.

Ante-partum ophthalmia neonatorum probably due to examining physician or midwife. *Friedenwald*, iv. B-54.

Pneumococcic conjunctivitis to be suspected when scarcely reddened palpebral conjunctiva, marked arborescent vascularization of ocular conjunctiva, with slight ecchymosis near corneal border; secretion more lachrymal than catarrhal and containing floating muco-fibrinous flakes. *Gasparrini*, iv. B-55.

Two cases of abscess of tarsus during decline of ophthalmia neonatorum. *Lor*, iv. B-56.

TREATMENT. Substitution of 1-per-cent. solution of mercury bichloride for silver nitrate of Credé's method wrong, albuminate of mercury so formed producing rapid destruction of eye. *Pflueger*, iv. B-55.

Silver nitrate at 1 to 150 preferable to avoid conjunctivitis induced by Credé's method. *Budin*, iv. B-55.

Ophthalmia neonatorum: Free irrigations twice daily, or oftener in severe cases, with 1 to 500 potassium-permanganate solution. *Kalt*, iv. B-55.

In same affection, thorough and frequent irrigation of *culs-de-sac* with boric acid. *Rohmer*, iv. B-56.

In early stages, frequent irrigation with mercury bichloride (1–3000 to 1–4000) and brushing palpebral conjunctiva with silver nitrate (2 grains to 1 ounce). Later stages, same remedies, 1 to 1000, and 10 grains to 1 ounce applied with brush, surplus being neutralized. *Owen*, iv. B-56.

Formalin, 1 to 4000, as wash; 1 to 200 as collyrium. *Fromaget*, iv. B-56.

Silver nitrate, at first 1 per cent., then 3 per cent.; bad cases and free, greenish-yellow discharge, mitigated stick; mercuric bichloride irritating to corneal epithelium;

EYE, DISEASES OF (continued).

potassium permanganate preferable, applied to everted lid by absorbent cotton. *Vignes*, iv. B-56.

Irrigation with sterilized water. *Wilson*, iv. B-56.

Only silver nitrate, in 3-per-cent. solution thoroughly applied thrice daily, will cure severe cases. *Abadie*, iv. B-56.

CONJUNCTIVITIS, TRACHOMATOUS. Trachoma and follicular conjunctivitis two separate affections; epidemics usually of follicular variety. *Schmidt-Rimpler*, iv. B-58.

Trichiasis resulting from trachoma treated by operation. *Kruedener*, iv. B-58.

Trachoma and follicular conjunctivitis not independent affections; trachomatous state must first pass through follicular state; general treatment necessary. *Würdemann*, iv. B-58.

Report of 2154 ocular cases in Russia; Knapp's rollers to be used only in connection with silver nitrate or copper sulphate in chronic cases. *Walter*, iv. D-59.

Steady and rapid decline of trachoma in Belgian army. *Vanderstraeten*, iv. B-59.

TREATMENT. In granular conjunctivitis nothing equal to dusting the lids with tannic acid twice daily. *Lal Madhud Mukherji*, iv. B-59.

Twelve cases of granular conjunctivitis successfully treated by electrolysis; cocaine anæsthesia; each granulation touched with steel needle connected with negative pole; 6 to 7 milliampères; no pain; no scar; lids restored to normal condition; simplicity. *Malgat*, iv. B-59.

In trachomatous keratitis; excision of muscular fibres in tarsus; decrease of blepharospasm and ptosis. *Mulder*, iv. B-59.

Lids everted; granules incised and curetted; each swelling touched with 1 to 1000 bichloride. *Lavrentieff*, iv. B-59.

Rudim's procedure to prevent progress of xerophthalmos recommended. *Androgsky*, iv. B-59.

Cauliflower excrescence on conjunctiva of lower lid; applications of paste of glycerin and peptenzyme; rapid disappearance. *Summers*, iv. B-60.

HÆMORRHAGE. Case of spontaneous conjunctival hæmorrhage originating in cyst of that membrane having undergone angiomatous change. *Mathieu*, iv. B-54.

Fatal case of hæmorrhage from conjunctiva of upper lid in 7-month-old child, due to vascular granuloma. *Stoewer*, iv. B-54.

Case of fatal hæmorrhage in 2-month-old infant, following destruction of papillary granulations of conjunctiva by sugar-cones. *Bala*, iv. B-54.

Case of severe and repeated hæmorrhage from small, jagged-edged ulcer, probably of nævoid origin, in middle of palpebral conjunctiva of left upper lid. *Jessop*, iv. B-54.

Recurrent hæmorrhage lasting over five months after expression for trachoma. *Stephenson*, iv. B-60.

NÆVUS. Case of pigmented nævus of conjunctiva almost covering internal third of cornea. *Armaignac*, iv. B-53.

PARASITES. Twenty-three maggots removed from conjunctival sac. *Russel*, iv. B-54.

PTERYGIUM. Pterygium due to pinguecula, as Fuchs believes. *Courtey*, iv. B-61.

Pterygium due to mechanically injured pinguecula. *Lopez*, iv. B-61.

Systematic scraping of cornea better than galvano-cauterization. *Deschamps*, iv. B-61.

Corneal wound resulting from removal of large pterygium covering two-thirds of cornea covered with flat sections of rabbit's cornea. *Schirmer*, iv. B-61.

MISCELLANEOUS CONJUNCTIVAL AFFECTIONS. Case of cysticercous cyst under conjunctiva between cornea and caruncle. *Juda*, iv. B-61.

Case of dilatation of Krause's gland, forming large growth springing from lower fornix; possibility of confusion with subconjunctival hæmorrhage. Study of serous cysts of conjunctiva. *Rombolotti*, iv. B-62.

Case of epithelioma of bulbar conjunctiva; penetration by sclero-corneal junction; demonstration of tract followed. *Lagrange and Mazet*, iv. B-63.

Case of epithelioma of sclero-corneal region in 14-year-old boy. *Rogman*, iv. B-69.

Two cases of hyaline degeneration of conjunctiva in non-trachomatous patients; absence of amyloid material; hyaline matter, while chemically distinct, closely associated clinically with usual predecessor of true amyloid change. *Van Duyse*, iv. B-62.

Case of conjunctival leprosy: iritis. *Lagrange*, iv. B-63.

Case of angioneurotic œdema of ocular conjunctiva. *Black*, iv. B-62.

Case of ophthalmia nodosa in eye struck by fox-moth caterpillar. *Lawford*, iv. B-61.

Pathological anatomy of three cases of polypoid neoplasms of conjunctiva. *Zimmermann*, iv. B-63.

Case of accidental sponge-grafting of conjunctiva; sponge-grafting a valuable means of replacing lost tissue. *A. G. Thomson*, iv. B-61.

Case of papular syphilide; flat, slightly elevated, hyperæmic areas in conjunctiva, protruding into cornea; improvement under treatment. *Rothschild*, iv. B-62.

Case of gummata of conjunctiva. *Hansell*, iv. B-62.

Case of primary tuberculosis of bulbar conjunctivitis. *Franke*, iv. B-63.

CORNEA, DISEASES OF.

ANOMALIES. Two cases of atypical

congenital anomalies of cornea. *Würdemann*, iv. B-63.

Case showing appearance of geometrical system of opaque lines in cornea supposed to be casts of lymph-channels. *Fridenberg*, iv. B-66.

Curvature of flattened cornea with two focal centres. (See text and illustrations.) *Axenfeld*, iv. B-67.

Greenish or red-brown color in blood-staining of cornea due to granules resembling hæmatoidin in substance of cornea; in some cases hæmosiderin; intra-ocular tension usually increased from obstruction of anterior-chamber angle by blood-cots. *Treacher Collins*, iv. B-68.

FOREIGN BODIES. Piece of iron spontaneously partly extended from cornea fifteen years after accident. *Hansell*, iv. B-64.

KERATITIS. Case of filamentary keratitis; treatment efficacious by removal of filaments and surrounding epithelium with probe. *Macleish*, iv. B-65.

Opacities of cornea with sequelæ of interstitial keratitis occurring at 38 years; notched upper incisors. *Hutchinson*, iv. B-120.

Three cases of typical interstitial keratitis at 20, 29, and 34 years. *Chevallereau*, iv. B-120.

Interstitial keratitis not a primary disease of cornea; probably originates in anterior part of uvea; is not a characteristic symptom of herditary syphilis, but is due to insufficient supply of nutritive matter to cornea, a result of diminution of lumen of blood-vessels through a thickening of their walls. *Thomson*, iv. B-20.

Case of malarial keratitis; peripheral, annular, parenchymatous infiltration separated from corneal margin by zone of clear tissue; opacity consisting of numerous minute points joined by fine, grayish lines; tenderness in supra-orbital notch. *De Schweinitz*, iv. B-65.

Case of superficial punctate keratitis. *De Schweinitz*, iv. B-66.

Rare variety of parenchymatous keratitis due to secondary acquired syphilis; superficial corneal infiltration; no vascularization of cornea or epithelial lesions. *Antonelli*, iv. B-65.

Case of keratitis neuroparalytica following fracture of skull; case of recurrent keratitis neuroparalytica associated with total paralysis of abducens of same side. *Kuthe*, iv. B-66.

OPACITIES. Case of congenital and familial disease of cornea; annular opacity at sclero-corneal junction; central part of cornea diffusely hazed. *Baas*, iv. B-63.

Report of pathological microscopical anatomy of congenitally opaque cornea; of cornea of cyclopian eye. *Tepljaschim*, iv. B-64.

Case of opacity of cornea following use of lead-acetate lotion; no lead demonstrated by chemical analysis. *Risley*, iv. B-64.

STAPHYLOMA. Cervical staphyloma; oral flap from cornea; no stitches. *Walter*, iv. B-69.

ULCERS. Corneal ulcer due to lesion of cornea and infecting material in contact; galvano-cauterization excellent; perforation of cornea with cautery preferable to Saemisch section; subconjunctival injections recommended, 2 drops bichloride 1 to 1000. *Abadie*, iv. B-64.

Simple corneal ulcer a purely local inflammatory process due to septic secretion from lachrymal nasal lesions; nose to be treated locally with compound tincture of benzoin and spray; mild antiseptic eye-wash; mydriatic, if necessary; hot applications when indicated; diet, hygiene, salt-water baths. *Ziegler*, iv. B-65.

In infectious corneal ulcers, occlusive compress bandage; mercury bichloride 1 to 10,000; resorcin in water as wash. *Rogée*, iv. B-65.

Ulcus cornea serpens most probably due to Fraenkel-Weichselbaum diplococcus. *Uhthoff*, iv. B-65.

TREATMENT. Aristol useful, after failure of other measures, in clearing base of corneal ulcers; useful as 5-per-cent. salve in ulcerous blepharitis and obstinately recurring styes. *Heuse*, iv. B-67.

Calomel, locally applied in scrofulous diseases of eye, praised; corneal ulcers with grayish-yellow, infiltrated edges, substitution of hot stupes of mercury-bichloride solution 1 to 5000; atropine rarely used. *Hoeltzke*, iv. B-67.

Subconjunctival injections of sterilized salt solution, maximum strength 4 per cent., in destructive and other inflammations of cornea and in various affections of uvea and vitreous humor. *Marti*, iv. B-67.

MISCELLANEOUS TREATMENT OF CORNEA. Vascularized cornea; each vessel slit along its whole course with a small Graefe cataract-knife; field of operation magnified by lens. *Scott*, iv. B-67.

Corneal transplantation not successfully made with any tissue resembling human corneal structure; embryonic cornea of half-matured sheep or goats suggested. *Fick*, iv. B-67.

GLAUCOMA.

PATHOGENESIS. Glaucoma caused solely by mechanical pressure upon vena vorticosa when sclera is thin; increased glaucomatous symptoms due to atropine, due to the rapid mydriasis causing contraction of blood-vessels of iris and overfilling of vessels of ciliary body, leading to increased lymphatic filtration when vena vorticosa are somewhat obstructed; in all slowly and unfavorably progressing cases sclerot-

EYE, DISEASES OF (continued).

omy or only paracentesis should be made upon cornea of better eye. *Adamük*, iv. B-108.

In primary simple glaucoma the local affection is a fibrosis choking special functional tissues to death. *Richey*, iv. B-108.

In glaucoma one cause may be clogging of sieve of membranous septum of lens-ligament by *débris* sediment from aqueo-vitreous chamber. Massage meets therapeutic indications. *Gould*, iv. B-108.

Halo in glaucoma dependent upon stasis and œdema of cornea. *Willits*, iv. B-109.

Three cases of buphthalmia; punctures of anterior chamber every third day; disease arrested for long periods of time. *Snellen*, iv. B-109.

Case of recurrent acute glaucoma causing myopia of ten dioptres from state of emmetropia. *Puech*, iv. B-109.

Case of complete glaucoma supervening upon use of atropine in failing vision. *Satterlee*, iv. B-109.

Case of acute glaucoma induced by atropine used before and after a needling operation in a 12-year-old girl. *Fisher*, iv. B-109.

Case of glaucoma developed in young subject as a result of yielding of sclerotic under influence of a first severe, then intermittent increases of, intra-ocular tension. *Puech*, iv. B-109.

Case of central scotoma ten degrees in extent twelve hours after prodromal attack of glaucoma. *Puech*, iv. B-110.

Study of 167 cases of glaucoma simplex; two and a half years average length of time to induce blindness; twenty months between manifestation of symptoms in the two eyes. Low-grade neuritis a constant attendant upon glaucoma, being noted in every eye containing a pathological excavation. Disease may occur without excavation, contraction of field, diminution of central visual cavity, or rise of tension. Excavation in 81.43 per cent. Rigidity of sclera often first indication of the increased ocular tension. Consideration of relative amount of contraction in form- and color- field, often adopted in the distinction between an atrophic and a glaucomatous excavation, valueless. Most frequent type of restriction of visual field consists in concentric limitation of entire field, not in contraction to nasal side. Full fields not inconsistent with glaucoma. *Zentmayer and Posey*, iv. B-110.

Distinction between typical chronic glaucoma and atrophy with cupping undesirable. Iridectomy performed early not rarely causes permanent arrest of affection; in chronic cases to be preferred to sclerotomy. *Nettleship*, iv. B-112.

TREATMENT. Eserine in every stage of glaucoma; if this fail, iridectomy. *Cohn*, iv. B-113.

Eserine and pilocarpine regularly used in solutions of ascending trength recommended; delay operative measures, but do not cure; often advantageously combined with sclerotomy. *Rochon-Duvigneaud*, iv. B-113.

Effect of eserine and iridectomy proportionately same in checking course of glaucoma. Eserine to be employed in all cases; if in one month field diminished, iridectomy. *Zentmayer and Posey*, iv. B-113.

Many cases of chronic glaucoma dependent upon grief and are purely temporary; scleral puncture effectual in acute, useless in chronic, variety. *Powers*, iv. B-113.

Essential to act quickly. *Critchett*, iv. B-114.

Operation recommended wherever vision, if health permit; displacement of lens and deep hæmorrhage diminished by preliminary scleral puncture. *Priestley Smith*, iv. B-114.

Fear of operation when vision is reduced to fixing-point, lest this amount of vision be abolished. *Swanzy*, iv. B-114.

Incision too near cornea frequent cause of operative failure. *Little*, iv. B-114.

Operation avoided; cocaine and eserine used nightly; iridectomy only when these fail. *Frost*, iv. B-114.

Early operation; incision with Graefe knife as far back as possible. *MacKinlay*, iv. B-114.

Sclerotomy recommended. *Williams*, iv. B-114.

When further interference required, sclerotomy, in coloboma of iridectomy. *McHardy*, iv. B-114.

Sclerotomy only when increase of pressure after iridectomy; no operation in chronic glaucoma without an increase of tension. *Fuchs*, iv. B-114.

Mechanism of iridectomy in glaucoma due to traction and displacement of tissues at angle of iris. *De Vincentiis*, iv. B-114.

Ideal operation in glaucoma a large scleral incision combined with an iridodialysis extending entire length of cicatrix. *De Wecker*, iv. B-114.

Most important point in success of sclerotomy is avoidance of any inflammatory reaction causing closure of sclera. Conjunctiva to be displaced before incision is made, so that conjunctival and scleral wounds do not correspond. Sclerotomy best treatment in certain chronic glaucomas, where it can be frequently repeated and supplemented by myotics. Sclerectomy consists in cutting out a small portion of sclera so as to produce a shelving depression reaching to choroid or near it; depression is then punctured. Operation useful in chronic glaucoma where enucleation is not desired. *Parinaud*, iv. B-115.

IRIS AND CILIARY BODY, DISEASES OF.

ANOMALIES. Two cases of variation

in color of irides; difference due to imperfect development of circulation in anterior part of lighter eye. *Malgat*, iv. B-69.

Corectopia a pathological variety of slight physiological displacement of pupil; when uncomplicated, unilateral; associated with displacement of lens, nearly always bilateral. *Best*, iv. B-69.

Three cases of cilia in anterior chamber; little or no irritation in any of these cases. *Harlan*, iv. B-70.

IRITIS. Report on specimen of thickened, hyaline, endothelial membrane of posterior surface of iris, with colloid degeneration masses attached. Morbid changes in the membrane may play part in pathology of iris analogous to membrane of Descemet in corneal disease. *Berger*, iv. B-72.

In plastic iritis no signs of forward displacement of lens nor increases in the refractive indices of aqueous and vitreous humors; condition due to spasm of accommodation. *Oliver*, iv. B-72.

Case of severe double iritis due to ozæna; case of iritis due to naso-pharyngeal catarrh. *Fage*, iv. B-71.

Iridocyclitis constantly accompanied by varying degrees of insensibility of cornea, due to compression of corneal nerves by infiltration of inflamed tissue. *Trantas*, iv. B-68.

TREATMENT. Method of cutting through anterior synechiæ by special blunt-pointed knife. *Gaupillat*, iv. B-71.

Scopolamine hydrobromate acts very energetically, often removing synechiæ which atropine had failed to influence. Quickly removes pain of iritis and other inflammations of the anterior portion of the eyeball; scarcely any unpleasant by-effects. One to 2 per 1000 strong enough for ordinary purposes. Repeat instillations three or four times a day. *Raehlmann*, v. A-136, 137.

In normal eyes 2-per-cent. solution produces enlargement of the pupil in from eight to ten minutes. *L. Grossmann*, v. A-137.

NERVOUS TROUBLES OF IRIS. Report of twenty-three cases of paralysis of the sphincter of iris and four cases of myosis. *Chauvel*, iv. B-70.

Case of incomplete reflex iridoplegia and incomplete accommodative iridoplegia in a man of good health and with normal accommodation. *Reber*, iv. B-71.

Case of filaria in anterior chamber. *Drake-Brockman*, iv. B-70.

TUBERCULOSIS OF. Case of tuberculosis of iris in 4-year-old boy. *Chevallereau*, iv. B-72.

WOUNDS. Case of traumatic irideremia; no inconvenience save from excessive light. *René*, iv. B-70.

Case of traumatic aniridia with conservation of lens. *Ahlstroem*, iv. B-70.

In hernia of iris tumor split from side to side with Graefe cataract-knife in direction of long axis to allow escape of fluid; rapid closure of wound by fibrocellular tissue; danger of infection or staphyloma avoided. *Grandclément*, iv. B-70.

MISCELLANEOUS. Differential diagnosis of gumma and sarcoma of ciliary region: first, early iritis, vitreous opacities, perhaps diminished tension, rapid evolution, and bulging of sclera; second, slow non-inflammatory onset with glaucoma later; thorough therapeutic test to be made before enucleation. *Rochon-Duvigneaud*, iv. B-73.

Case of double ectropium uveæ. *Dunn*, iv. B-70.

Case of suppurative iridochoroiditis; recovery by subconjunctival injections of bichloride, mercurial inunctions, and injections of bichloride, with atropine and hot compresses. *Coppez*, iv. B-122.

Case of tuberculosis involving iris of right and choroid of left eye; five cases of sarcoma of the choroid; enucleation; no recurrence; death, in one case, of sarcoma of liver. *Gutmann*, iv. B-122.

LENS, DISEASES OF.

CATARACT.

ETIOLOGY. Case of bilateral congenital cataract in rabbit, probably due to fœtal injury. *Vuellers*, iv. B-75.

From study of cases astigmatism not a cause of cataract, but simply favoring its development. *Roure*, iv. B-74.

SYMPTOMATOLOGY. Method of studying lenticular opacities. *Darier*, iv. B-74.

In cataract spontaneous luxation downward of lens in elderly persons dangerous. "Second sight" a danger-signal; often due to congestion of fundus and relaxed suspensory ligament, causing luxation of lens forward. *Thompson*, iv. B-73.

OPERATIONS. Eserine permits a very clean iridectomy. *Nanavatta*, iv. B-79.

Extraction without iridectomy with small conjunctival flap above. *Nuel*, iv. B-80.

Most successful cases where lens extracted in its capsule without iridectomy. *Gimlette*, iv. B-78.

Extraction in capsule without iridectomy through inferior section. *Maher Chund*, iv. B-78.

Extraction without iridectomy. *Taylor*, iv. B-79.

In cataract, corneal section occupying one-third of membrane, and so completed that section-edges come together; iridectomy, if pupil not enlarged sufficiently by atropine, lens hard and large, adhesions of iris, iris injured, or patient incapable of enduring quiet. *Lal Madhub Mukerji*, iv. B-77.

Extraction with iridectomy and scleral section. *Leplat*, iv. B-79.

Cataract preferably operated by Knapp's

EYE, DISEASES OF (continued).

method of peripheral capsulotomy with iridectomy, simultaneously or previously. *Baker*, iv. B-74.

Method of operation for cataract. *Love*, iv. B-78.

Corneal suture passed previous to corneal section; suture tied. *Kalt*, iv. B-79.

During corneal section conjunctival and episcleral tissues fixed with forceps close to sclero-corneal margin above cornea; sclero-corneal margin thus raised above iris. *Taylor*, iv. B-80.

Sunlight and smoked glasses after operation. *Walter*, iv. B-81.

Corneo-scleral suture to retain completely everted corneal flap. *Trousseau*, iv. B-82.

Artificial ripening of cataract at times advisable; direct trituration preferable. *Bettmann*, iv. B-76.

Direct trituration recommended. *Pipino*, iv. B-76.

In traumatic cataract with rapid swelling of lens, extraction; incision with Graefe knife within sclero-corneal junction, involving from one-third to three-fifths of its circumference; no iridectomy. *Ball*, iv. B-77.

Series of rules for young ophthalmologists operating for cataract. (See text.) *Pagenstecher*, iv. B-77.

Simple linear extraction best operation in congenital cataract. *Van den Bergh*, iv. B-77.

Congenital nuclear cataracts with transparent periphery; upper part of iris split vertically, producing stenopaic slit pupil. *Lagrange*, iv. B-77.

In case of lachrymal disease not subsiding under ordinary treatment prior to cataract operation, closure of canaliculus by thermocautery. *Blumenthal*, iv. B-77.

After cataract extraction upper part of pupil clearer; due to incision and action of upward-passing lens; same condition secured for more centrally situated area by lower first incision in capsule. *Schneideman*, iv. B-81.

Case of successful operation on myxœdemic woman. *Kirk*, iv. B-81.

Report on personal experience in extraction of cataract; method used. *Derby*, iv. B-82.

Report on method pursued and results obtained in 100 consecutive cases of extraction; conjunctival flap recommended. *Story*, iv. B-83.

Report on 200 cases of extraction at Kashmir Mission Hospital. *Neve*, iv. B-83.

Study of 1032 cases combined extraction and 1123 cases simple extraction; simple extraction far superior. *Ring*, iv. B-83.

Report on extraction of twenty-five cases immature, senile, and some forms of zonular cataract; inflammatory conditions never awakened by cortical substance in immature cataract. *Weeks*, iv. B-84.

Report on results obtained during one year in Wills Eye Hospital. *Ellet and Parker*, iv. B-84.

Eye operated by couching thirteen years previously; vision perfect. *Barrett*, iv. B-84.

Report on 100 consecutive operations; extraction without iridectomy preferred, except when glaucomatous tension, where pupillary margin free or, in some cases, where a few posterior synechiæ exist. In discission cauterization of cortical wound often performed. *Weeks*, iv. B-84.

Report on eleven cases; most important factors,—after-treatment and intra-ocular tension counteracted. *Bettman*, iv. B-80.

Mercury bichloride 1 to 2000 for cleansing instruments and eye; boric acid and iodoform powder dusted into eye after operation. *Bamber*, iv. B-78.

Knife of same length as Graefe knife, with convex cutting edge and sharper point; cutting of iris impossible. *Terson*, iv. B-79.

Syringe like to Anel's to wash out anterior chamber. *Chibret*, iv. B-80.

Very delicate knife with triangular point and one-millimetre-broad blade in discission. *Nicati*, iv. B-82.

Report of new operation called "anterior scleronyxis" in simple secondary cataract. *Wicherkiewicz*, iv. B-82.

COMPLICATIONS OF OPERATIONS. In some cases deep-seated opacity in hyaloid membrane, densest at centre; noted after operation by inability to count fingers; division by cystotome. *Fink*, iv. B-78.

Case of infection of eye following extraction; bacillus salivarius septicus. *Evetzky and Berestnew*, iv. B-82.

Case of intra-ocular hæmorrhage following extraction in degenerative heart disease. *Lee*, iv. B-82.

Seven cases of delirium following cataract extraction, due to various causes. *Fernandez*, iv. B-81.

Cases of delirium tremens following extraction; death. *Dujardin*, iv. B-81.

Delivery of cataract by manipulation recommended; case of panophthalmitis after successful operation of fellow-eye. *Burnett*, iv. B-80.

Case of double cataract extraction followed by hæmorrhage, with subsequent restoration of vision. *Gasparrini*, iv. B-80.

DISLOCATION OF LENS. Case of spontaneous luxation of cataractous lens into vitreous; cyclitis; lens extracted; recovery. *Lagrange*, iv. B-76.

Four cases of spontaneous luxation of lens. *Armaignac*, iv. B-75.

Two cases of congenital subluxation of lens. *Weisz*, iv. B-75.

Lens dislocated into anterior chamber best removed by needle to fix lens, and scoop passed behind it. *Mackay*, iv. B-76.

Case of secondary glaucoma following partial dislocation of lens; removal of lens; cessation of all pressure symptoms. *Oliver*, iv. B-76.

OPACITIES. Case of punctiform opacity in lens due to uric-acid diathesis. *Bergmeister*, iv. B-75.

Case of cholesterin crystals in lens. *Lang*, iv. B-74.

Report on lens-star figure of man and vertebrates. *Fridenberg*, iv. B-73.

WOUNDS OF LENS. Series of cases; perforation of capsule opened; permanent healing without opacity or with limited opacity. *Jackson and Schneideman*, iv. B-75.

Case of localized opacity in lens due to iron particle; resorption of opacity; vision 0.5. *Rothschild*, iv. B-75.

MISCELLANEOUS. Cases of false lenticonus; diagnosis from true lenticonus by Purkinje's images. *Demicheri*, iv. B-74.

Case of curious crescent-shaped retinal reflex, due to spherical aberration. *Schwarzschild*, iv. B-74.

EXTERNAL MUSCLES, DISEASES OF. Relation between abduction and adduction 1 to 3; from examination of subjects. *Risley*, iv. B-34.

Pupillary contraction in ; near vision more intimately associated with convergence than with accommodation. *O'Connor*, iv. B-34.

DIPLOPIA. Method of rapidly discovering faulty muscle in diplopia. *Arnaud*, iv. B-34.

Presence of congenital paralysis of superior rectus muscle not necessarily to be inferred from diplopia in upper lateral fields. *Alling*, iv. B-33.

HYDATID CYST. Case of hydatid cyst under left internal rectus tendon. *Ripault*, iv. B-43.

NYSTAGMUS. Nystagmus dependent upon associated movements of head; connected with lymph in labyrinth. *Bach*, iv. B-38.

Seven cases of nystagmus in one family; other forms of nervous trouble frequent; stigma of pathological heredity in mentally defective families. *Audeoud*, iv. B-38.

OPTIC NERVE, DISEASES OF. Cases of deep cupping of both disks, with normal tension. *Hotz*, iv. B-97; *Coleman*, *Fisher*, iv. B-98.

Case of extensive hyaline formation in optic nerve of 8-year-old girl; superior arteries almost entirely occluded and changed into glistening white bands. *Gifford*, iv. B-98.

Case of relapsing and alternating acute optic neuritis in syphilitic patient. *Hansell*, iv. B-98.

Case of hereditary familial retrobulbar neuritis. *Dodd*, iv. B-98.

Case of sarcomatous tumor of optic nerve. *Ahlstroem*, iv. B-98.

Histological report of alveolar fibrosarcoma of optic nerve. *Finlay*, iv. B-99.

Choked disc following cerebral hæmorrhage indicates hæmatoma of nerve; grave prognosis. *Bouveret*, iv. B-99.

PARALYSIS. Displacement of eye other than lateral, when other evidences of cerebellar disease present, points to implication of middle lobe. Indications of increased intra-cranial pressure with inward displacement of one or both eyes possibly due to pressure on sixth nerve. When nuclei or cerebellum secondarily affected, middle lobe usually implicated. *Russell*, iv. B-37.

Three cases of congenital bilateral ptosis, associated with partial ophthalmoplegia; vertical ocular movements preserved; horizontal movements much limited. *Dujardin*, iv. B-37.

Paralysis of superior rectus probably of central congenital origin. *Brunner*, iv. B-36.

Case of total paralysis of elevation, limitation of depression to twenty degress, and paralysis of accommodation; hypothesis of supranuclear association centre probably situated in quadrigeminal body. *Sauvineau*, iv. B-36.

Retraction of eyes in a case of abolished adduction and abduction. *Rais*, iv. B-34.

Case of marked general limitation of movement of globe following contusion; recovery by stereoscopical exercises. *Vignes*, iv. B-35.

Case of paralysis of extrinsic muscles of eye, involving the obliques and superior and inferior recti with paresis of, internal and external recti of right eye. *Bitzos*, iv. B-36.

Case of nuclear ophthalmoplegia; extrinsic muscles almost completely paralyzed; intrinsic muscles were only slightly affected. *Hubbell*, iv. B-37.

Case of external ophthalmoplegia; stereoscopical exercises give favorable results. *Vignes*, iv. B-37.

Case of bilateral complete external ophthalmoplegia in 2-year-old girl. *Jack*, iv. B-36.

Case of paralysis of oculo-motor nerve, just previous to pneumonia; gradual recovery during convalescence of latter. *Alt*, iv. B-36.

Congenital case of partial oculo-motor paralysis in idiotic child, probably due to partial external paralysis of third nerve, except branch supplying levator palpebræ. *Koenig*, iv. B-35.

Lesions of oculo-motor and trigeminal nerve frequently associated; etiology and pathology of disturbances of the latter analogous to those of its neighbors. *Benoit*, iv. B-37.

Case of associated peripheral paralysis of third and seventh with implication of fifth

EYE, DISEASES OF (continued).

cranial nerves on right side. *O'Connor*, iv. B-36.

Four cases of paralysis of fourth nerve. *Chauvel*, iv. B-34.

Case of bilateral paralysis of sixth nerve, due to head-injuries. *Friedenwald*, iv. B-35.

Case of traumatic paralysis of external rectus following contusion of mastoid process and probably due to small hæmorrhage in the cavernous sinus or concussion of nerve. *Armaignac*, iv. B-35.

Two cases of paralysis of external rectus muscle; second case rapidly ameliorated by gymnastics of eye. *Roy*, iv. B-34.

So-called rheumatic paralysis of external rectus; subcutaneous injection of mercury bichloride, 1 cubic centimetre, 1-per-cent. solution daily into buttock or temple. *Martin*, iv. B-42.

STRABISMUS. Homonymous diplopia in a case of divergent strabismus. *Harvey*, iv. B-39.

Lateral deviations due to unequal inferior or superior recti or to their hypertension to be treated by tenotomy of such muscles. *Stevens*, iv. B-40.

Nine cases of insufficient internal rectus. *Chauvel*, iv. B-40.

Binocular vision in strabismus the rule; secondary image not noticed; after operation exercise of weaker eye. *Schmidt-Rimpler*, iv. B-40.

Parallax test for heterophoria precise, accurate, useful. *Duane*, iv. B-34.

No essential connection between convergence and accommodation; cases of converging strabismus with hypermetropia and of diverging strabismus with myopia greatly exaggerated; cases of strabismus relieved by positive or negative spherical glasses are cases of hypermetropia relieved by such glasses acting as vertical prisms; excessive accommodation not directly a causative influence in converging strabismus. *Stevens*, iv. B-33.

Right eye most often affected in convergent strabismus; left in divergent strabismus; complications rare in convergent, very frequent in divergent, strabismus; divergent strabismus dependent upon amblyopia; tenotomy not advised in adults. *Chauvel*, iv. B-38.

Two classes of concomitant convergent squint: (1) with congenital amblyopia; (2) from relative hypermetropia with possible psychical suppression of visual image in one eye. In first class shorten externus; in second, if correction of hypermetropia fail, tenotomy. *Valk*, iv. B-39.

Report upon 612 cases of convergent squint with special reference to final results of operation. (See text.) *Bull*, iv. B-41.

To judge results of tenotomy those cases of tenotomy in which diplopia exists to be chosen; retraction of muscular insertion not sufficient to account for effect of tenotomy; in divergent strabismus simple advancement of interni rarely succeeds. *Schweigger*, iv. B-42.

In operation for advancement two horizontal incisions parallel with borders of muscle, including conjunctiva in muscle-sutures. *Fergus*, iv. B-43.

Advantages of advancing external rectus in strabismus. *Bourgeois*, iv. B-43.

In strabismus capsulo-muscular advancement preferable to tenotomy. *Vignes*, iv. B-43.

Any modification of lateral muscle affecting rotation of eye to be accompanied by exactly equivalent modification of corresponding muscle in other eye. *Stevens*, iv. B-43.

Divergent strabismus: tenotomy of external rectus, muscular advancement of internal rectus. Periodical convergent strabismus: refraction corrected and general treatment. Alternating convergent strabismus: refraction corrected, limited tenotomy of internal rectus. Fixed convergent strabismus: tenotomy of internal rectus, advancement of external rectus of same eye. *Valude*, iv. B-40.

Strabismus a symptom of some morbid or congenital defect; when due to opacities or congenital amblyopia, operations solely for cosmetic effect; when due to hyperopia and normal recti, tenotomy or advancement, atropine, mydriasis, glasses, gymnastics; binocular vision attainable in fair proportion of cases when strabismus not due to opacities, congenital amblyopia, or organic disease of retina or optic nerve. *O'Connor*, iv. B-38.

More cases of convergent strabismus cured by glasses if total correction be ordered. *Hughes*, iv. B-43.

MEDICAL OPHTHALMOLOGY.

BLEPHAROSPASM. Case of tonic blepharospasm simulating ptosis subsequent on excitement, excessive smoking, and fatigue. *Pershing*, iv. B-118.

Case of blepharospasm and photophobia lasting two years; only discoverable lesions, a few granulations on upper lids and haziness of one cornea. Free canthotomy and local treatment; rapid recovery. *Wright*, iv. B-119.

EXOPHTHALMOS. Case of exophthalmos immediately following blow on right side of head. *Square*, iv. B-116.

Report of post-mortem examination in a case of traumatic pulsating exophthalmos. *Stuelp*, iv. B-116.

Case of bilateral exophthalmos probably due to intercranial arterio-venous aneurism. *De Schweinitz*, iv. B-117.

Case of pulsating exophthalmos of right side caused by aneurism of internal carotid

finally breaking into cavernous sinus. *Bronner*, iv. B-117.

Case of exophthalmos in a 3-month-old infant; recovery. *Garrison*, iv. B-117.

HEMIANOPSIA. All cases of bitemporal hemianopsia not to be considered as due to lesions of optic chiasm unless other symptoms of central disease present. Case due to pressure of enchondroma upon optic chiasm. Case due to chronic inflammatory process. *Abelsdorff*, iv. B-133.

Case of coincident heteronymous temporal hemianopsia and diabetes insipidus, of syphilitic origin, cured by mixed treatment of mercury and potassium iodide. *Spanbok and Steinhaus*, iv. B-133.

Case of binasal hemianopsia. *Eales*, iv. B-134.

Case of inferior horizontal hemianopsia, with atrophy of superior half of disc, due to neuritis of upper halves of nerves. *Abelheim*, iv. B-134.

Case of quadrisectoral homonymous hemianopsia in syphilitic patient; lesion held to be in back part of internal capsule, implicating both occipital lobes. *Weymann*, iv. B-132.

Case of left lateral hemianopsia and hemiplegia in a woman suffering from double mitral disease. *Mouisset*, iv. B-133.

Case of syphiloma of optic chiasm, causing recurrent bilateral temporal hemianopsia. *Nummack*, iv. B-133.

HEMERALOPIA. Circulatory changes in retina of mother producing hemeralopia during period of pregnancy; this circulatory change, acting also upon fœtal eye, produces faulty development. *Weiss and Oettinger*, iv. B-128.

Five cases of congenital hemeralopia. Congenital hemeralopia a malformation of deeper layers of retina, probably of pigment-epithelial layer. *Cutler*, iv. B-137.

Epidemic of hemeralopia associated with conjunctival xerosis in orphan asylum. *Dujardin*, iv. B-119.

HERPES ZOSTER. Case of herpes zoster of iris during course of frontal herpes zoster; final atrophy of iris. *Machek*, iv. B-121.

Case of herpes frontalis complicated by iritis; ptosis on tenth day, lasting two weeks. *Howard*, iv. B-121.

NERVOUS AFFECTIONS. Peculiar associated movements of jaw and upper lid in case of coloboma of optic nerve. *Hillemans*, iv. B-118.

Winking more frequent in tired eyes; degree of fatigue estimated by Marcy's myograph. *Katz*, iv. B-118.

Case of unilateral Argyll-Robertson pupil probably due to the centripetal pupillary fibres of third nerve near its nucleus. *Seggel*, iv. B-121.

Narrowing of palpebral fissure in case of recovering peripheral facial paralysis resulting from fall. *Esson*, iv. B-127.

Case of peculiar perversion of color-perception; perception of colors in their complements and nervous disorders; recovery by potassium iodide. *H. E. Smith*, iv. B-138.

Case of partial dilatation of pupil thirty-two hours after fall on side of face; recovery in five days. *Eales*, iv. B-121.

NEURITIS. Two varieties of neuritis: one inflammatory, resulting from meningitis, etc., and another of œdematous origin. Optic neuritis of intra-cranial origin primarily a lymphatic œdema of nerve like œdema of cerebral substance and most frequently associated with hydrocephalus, but not necessarily implying existence of dropsy of ventricles. *Parinaud*, iv. B-130.

Two cases of optic neuritis of cerebral origin; first case, syphilis; second, tuberculous. *Dabney*, iv. B-131.

Case of double optic neuritis and atrophy in one eye, due to chronic gonorrhœa. *Panas*, iv. B-132.

Case of second attack of papillitis. *De Schweinitz and A. G. Thomson*, iv. B-132.

Case of severe headache with low-grade neuritis and diminished visual acuity; wet cups to base of skull; almost instant permanent relief. *Croskey*, iv. B-132.

Case of choked discs from chronic meningitis, with post-mortem examination. Convolutions flattened; dura mater adherent at and for a small area around exudate; ventricles enormously distended with clear serum. *Webster*, iv. B-131.

NYSTAGMUS. Case of hereditary congenital nystagmus associated with head-movements, transmitted through females. Four cases of lateral familial nystagmus with well-marked astigmatism. *McGillivray*, iv. B-128.

Report on twenty cases of nystagmus. *Chauvel*, iv. B-127.

OPHTHALMOPLEGIA EXTERNA. Three cases of congenital ophthalmoplegia externa. *Guende*, iv. B-125.

Case of left traumatic ophthalmoplegia; ptosis operated upon by Panas's method; internal and external recti operated. After three years binocular vision in primary position of eyes, diplopia being manifest when eyes were directed above or below. *Gutmann*, iv. B-125.

Two congenital familial cases of complete external ophthalmoplegia, without involvement of intra-ocular muscles and with normal fundus. *Maginelle*, iv. B-125.

PARALYSIS. Latent insufficiency of ocular muscles in ataxic cases, to be detected by Maddox rod. *Guillery*, iv. B-127.

Case of bilateral post-diphtheritic paralysis of sixth nerve; such condition follows only severe cases. *Denig*, iv. B-127.

Case of paralysis of right sixth nerve, fol-

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lowing fall, and accompanied by complete paralysis of right facial and auditory nerves. *Moulton*, iv. B-127.

Case of associated paralysis for lateral movement to the left, in syphilitic subject; right internal rectus paralyzed; left external rectus intact. *Sauvineau*, iv. B-125.

Case of paralysis of right sixth nerve on the third day of pneumonia. *Westhoff*, iv. B-127.

Case of total unilateral paralysis of third nerve in a healthy child without syphilitic history. Rapid recovery after administration of mercury and potassium iodide; hypothesis of some undetermined infectious process. *De Spéville*, iv. B-125.

Report on thirty-nine cases of paresis and paralysis of third nerve and on thirty cases of paresis and paralysis of sixth nerve. *Chauvel*, iv. B-126.

Case of recurrent oculo-motor paralysis ushered in by pain, nausea, and vomiting and attended by anæsthesia in upper two divisions of fifth nerve. *Knapp*, iv. B-126.

REFLEX DISORDERS. Case of ischæmia of retina and optic atrophy consequent upon traumatism of heart. *Valude*, iv. B-136.

Case of iritis and otitis media due to purulent rhinitis caused by naso-pharyngeal tumor; recovery only after total extirpation of the naso-pharyngeal mass. *Berger*, iv. B-121.

Two cases of ophthalmia hepatica, with one post-mortem examination; sclerosis in choroidal and other circulations. *Baas*, iv. B-118.

Eye complications following grip comparatively rare; before assigning grip as cause, necessary to exclude other causes. *Pooley*, iv. B-136.

Two cases of influenza affecting eye; one with infected ulcer of cornea, the other of panophthalmitis. Predilection for optic nerve, retina, and periorbital sinuses. *Panas*, iv. B-120.

Mild acute conjunctivitis frequently due to irregular bowel action. *Moore*, iv. B-118.

Cases of diffuse keratitis in child; extraction of first upper molar tooth on same side; rapid recovery. *Sous*, iv. B-120.

Frequency of ocular and orbital affections following dental disease. *Leplat*, iv. B-136.

Five cases of sensory disturbances of globe and about eye in locomotor ataxia. *Berger*, iv. B-136.

Case of unilateral syringomyelia with diminution of palpebral slit, retraction of globe, and myosis on affected side. *Vialet*, iv. B-137.

Case of $\frac{3}{10}$ vision and contraction of formed color-field in subject of diabetes with doubtful history of syphilis. Repeated recurrence; exacerbations relieved by mercurial inunctions. *Deschamps*, iv. B-135.

Many neoplasms of orbit supposed to be lymphoma, sarcoma, or syphiloma, result of dyscrasia due to toxins. *Panas*, iv. B-118.

Degeneration of the eye-muscles due to chronic myositis dependent upon abnormal condition of blood. *Baas*, iv. B-127.

Lithæmia a factor in many disorders of eye. Cases of conjunctivitis failing to yield to local treatment subsiding rapidly with full doses of salicylate of soda and purge. *Risley*, iv. B-136.

Case of bilateral panophthalmitis following pneumonia; death. *Leplat*, iv. B-122.

Case of tuberculosis of right apex; partial right ptosis and myotic and sluggish pupil. *Rampoldi*, iv. B-121.

Case of marked anatomical changes in fundus due to intestinal worms; swelling of disc, disturbance of vision; rapid amelioration after disappearance of parasites. Affection due to increase in intra-cranial pressure, induced indirectly by changes in the circulation by the reflex irritation of the intestinal sympathetic. *Meurer*, iv. B-129.

Case of monocular diplopia of hysterical origin in girl showing no other symptoms of hysteria. *Lagrange*, iv. B-127.

Case of spontaneous mydriasis; probable hysterical origin; repeated strychnine injections; recovery. *Malgat*, iv. B-121.

Case of apparent binocular hysterical blindness in 21-year-old man. *Powers*, iv. B-138.

Case of hysterical amblyopia with central scotoma following removal of cholesteatoma from mastoid. *Blok*, iv. B-138.

Suggestive therapeutics an important, harmless aid in treatment of hysterical amblyopia and amaurosis. *Booth*, iv. B-138.

RETINAL HÆMORRHAGES. Retinal hæmorrhages in pernicious anæmia due to tape-worm caused by diapedesis; rapidly absorbed. *Tschelmolosow*, iv. B-129.

Case of retinal hæmorrhage in patient giving a family history of hæmophilia for four generations. *Vialet*, iv. B-128.

Three cases of localized retinal hæmorrhages in patients with a previous history of influenza. *Galezowski*, iv. B-128.

RETINITIS. Case of syphilitic retinitis followed by atrophy and permanent diminution of vision. Nephritis of syphilitic origin. Retinitis in renal disease not necessarily of albuminuric origin. *Berger*, iv. B-129.

In early stages of retinitis albuminurica gravidarum peculiar golden-yellow, shining reflex, of varying width, always greater than the normal, upon retinal artery; similar appearance in syphilis and arterio-sclerosis of internal artery. Uterus emptied as soon as symptoms appear; prevention of future pregnancies to prevent relapses. *Silex*, iv. B-129.

Four cases of retinitis due to chronic,

diffuse nephritis; no albumin; diagnosis from casts and other abnormal constituents of urine. *Webster*, iv. B-129.

Average duration of life after appearance of retinitis from renal disease, exclusive of cases following scarlet fever and pregnancy: 419 cases; 72 per cent. died within one year, 90 per cent. within two years, 9 per cent. lived longer than two years. *Belt*, iv. B-129.

Occurrence of retinitis albuminurica with chronic Bright's disease indicates death within period which may be predicted with some degree of certainty; with acute kidney disease, although of gravest significance, there is a chance of saving life. *Van Fleet*, iv. B-130.

No right to commit abortion to save eyesight. *Van Fleet*, iv. B-130.

Case of typical pigmentary retinitis, of probable syphilitic origin, with annular scotoma. *Trantas*, iv. B-129.

SYPHILIS. Case of chancre of eyelid, followed by marked diffuse retinitis. *Oliver*, iv. B-118.

Chancre 1 in 500 cases on lid or conjunctiva. *Fournier*, iv. B-118.

Five cases of syphilis of brain with various disturbances of eye. *Zimmermann*, iv. B-134.

Case of gumma of ciliary body,—a precocious tertiary symptom; should always be borne in mind in cyclitic conditions and in syphilitics. *Terson*, iv. B-121.

In syphilitic optic atrophy and oculomotor nerve-lesions mercurial inunctions the only useful remedy; potassium iodide of no value. *Galezowski*, iv. B-135.

Parenchymatous keratitis and exudative choroiditis have a common origin in hereditary syphilis and are equally influenced by mercury. Parenchymatous keratitis not a special manifestation of hereditary syphilis, but is observed more frequently in syphilitic children, because more exposed than syphilitic adults to corneal affections; old syphilitics liable to relapses after attacks of influenza. *Chibret*, iv. B-135.

Eye-lesions of hereditary syphilis: 1. Malformation of protecting membranes. 2. Paralysis of motor nerves; ptosis; nystagmus. 3. Arrest of development. 4. Alterations in internal membranes, with amblyopia and amaurosis. *Galezowski*, iv. B-135.

Following are tertiary lesions: Caries of nasal fossæ; confluent syphilide of face and eyelids; gumma of sclera and iris; choroiditis and pigmentary retinochoroiditis; gumma of chiasm; hemianopsia; locomotor ataxy with atrophy of papilla and paralysis of motor nerves. Iritis, too, falsely classed as secondary. Treatment: inunctions of mercury,—31 grains daily for two years consecutively; potassium iodide when mercurial intoxication has gone too far, and beginning inunctions when symptoms of mercurial poisoning disappear. *Galezowski*, iv. B-135.

TOXIC DISORDERS. Tobacco-amblyopia at first only a functional disorder or circulatory disturbance, which may lead to organic change, producing atrophy of papillomacular fibres. *Ramsey*, iv. B-138.

Case of large, red-colored scotoma of left eye coming on quite suddenly in moderate tobacco-smoker. *Cleeman*, iv. B-138.

Tobacco-amaurosis the cause of the gradual blinding of Australian horses fed on *Nicotiana suavolens*. First symptoms, night-blindness; absolute blindness in from six months to two years. At post-mortem atrophy of spinal cord and nerves, though no related symptoms during life. *Heusmann*, iv. B-138.

Case of amblyopia due to dinitrobenzol, in patient with other toxic symptoms. *Pockley*, iv. B-139.

Case of amblyopia by stramonium prescribed for asthma. *Di Cerrillo*, iv. B-139.

Case of absolute blindness from optic atrophy following tænifuge; filicic acid. *Gross*, iv. B-139.

Two cases of sudden blindness following use of male fern as vermifuge; one comparative recovery; one persistence. *Masius*, iv. B-139.

TUBERCULOSIS. Case of primary tuberculosis of conjunctiva; excision and galvanocautery. *Franke*, iv. B-119.

Two cases of primary tuberculosis of cornea. *Bach*, iv. B-120.

Case of tuberculous iritis, in patient presenting numerous lesions in series affecting superficial tissues of all portions of body. *Coppez*, iv. B-122.

Three cases of primary tuberculosis of uveal tract. *Denti and Rombolotti*, iv. B-122.

XEROSIS. Xerosis conjunctiva caused by degeneration of epithelial cells due to endarteritis obliterans of subconjunctival vessels. *Baas*, iv. B-119.

Case of xerosis epithelialis associated with hemeralopia in a badly-nourished boy accustomed to drinking half a glass of whisky daily. *Aschenbach*, iv. B-137.

MISCELLANEOUS. Three cases of amaurosis after injury to the head. *Nettleship*, iv. B-139.

Case of amblyopia appearing at eighteenth hour of twenty-four-hour bicycle ride; cornea diffusely hazed, but without any superficial lesion. Hot applications; normal vision regained in one day. *Duboys de Lavigerie*, iv. B-137.

Case of aneurism of internal carotid at left cavernous sinus following fall. Complete ophthalmoplegia of left eye; violent recurring nasal hæmorrhages. *Guibert*, iv. B-139.

Case of exophthalmic goitre with monoc-

EYE, DISEASES OF (continued).

ular symptoms and unilateral thyroid hypertrophy on opposite side. *Fridenburg*, iv. B-137.

Case of exophthalmic goitre where all symptoms except tachycardia and insomnia were relieved by administration of 31 grains of sodium salicylate daily. *Angiéras*, iv. B-137.

Case of gradual, but total, loss of vision by presence of small roll of paper under lid. *Valude*, iv. B-137.

Case of permanent scotoma caused by looking at sun during an eclipse. *Duane*, iv. B-128.

THERAPEUTICS AND INSTRUMENTS.

ANTITOXIN. Four cases of diphtheritic conjunctivitis cured by antitoxic serum. *Morax*, iv. B-144.

Severe case of diphtheritic conjunctivitis complicated by diphtheritic membrane on cheek and external auditory canal treated by antitoxic serum. Recovery without cicatrices. *Coppez*, iv. B-144.

Two cases of diphtheritic conjunctivitis successfully treated with Klein's antitoxic serum. *Jessop*, iv. B-144.

ARECOLINE. Instillation of 1-per-cent. solution of arecoline hydrobromate; marked myosis in three minutes, lasting seventy minutes, and strong ciliary contraction (5 to 6 dioptres), lasting for seven to eight minutes. *Lavagna*, iv. B-141.

CHLORINE-WATER. Chlorine-water the safest and least irritating of antiseptics; especially useful in suppuration, traumatism, and sympathetic ophthalmia. Four drops of 4-per-cent. solution injected with hypodermic syringe into centre of vitreous through sclerotic, between insertions of external and superior recti muscles. *Berry*, iv. B-141.

COCAINE. No difference in healing process in cornea incised with or without cocaine. *Blok*, iv. B-140.

FORMALIN. Formalin recommended for lavage of conjunctiva, and in suppurative keratitis, granular ophthalmia, and ophthalmia neonatorum. Slight local anæsthetic action. *Guaita*, iv. B-141.

GALLICIN. Gallicin applicable in all cases of catarrhal affections of mucous membrane of eye, either with or without secondary eczema; in phlyctenular keratitis or conjunctivitis, follicular conditions, and superficial keratitis. Best employed as powder. *Suker*, iv. B-141.

GALVANISM. Galvanism is recommended in all inflammations of uveal tract, whether old or recent; twenty-four cases reported. Negative pole over lids, positive pole at mastoid process; current of from 2 to 5 milliampères for twenty-five minutes once or twice daily. *Pansier*, iv. B-140.

GALVANO-CAUTERY. Galvano-cautery to destroy tissue containing diffused charcoal after gunpowder injuries. Points involved to be touched in rapid succession by small tip at white heat. *Jackson*, iv. B-140.

LORETINATE OF BISMUTH. Powdered loretinate of bismuth recommended as a preventive of inflammation after operations and as curative in all forms of conjunctivitis. *L. Damany*, iv. B-140.

MASSAGE. Ocular massage an adjunct to ordinary treatment in many conditions of eye; contra-indicated in leucoma, progressive myopia with posterior staphyloma, commencing cataract, and marked lowering of ocular tension. *Parenteau*, iv. B-140.

MERCURY BICHLORIDE. See SUBCONJUNCTIVAL INJECTIONS.

PYOKTANIN. Pyoktanin in 1-per-cent. solution recommended as a stain in ulcer of the cornea, to limit action of cautery or curette to its proper bounds; in 20-per-cent. solution useful in epithelioma of lids; no advantage in conjunctival catarrh. *Puech*, iv. B-140.

SCOPOLAMINE. Case of mental hallucinations, stupor, and complete loss of co-ordination following instillation of scopolamine. *Buller*, iv. B-141.

SILVER NITRATE. Case of diphtheritic conjunctivitis successfully treated by 5-per-cent. solutions of silver nitrate and lemon-juice. *Frenkel*, iv. B-143.

SUBCONJUNCTIVAL INJECTIONS. Pain of mercury-bichloride subconjunctival injections always severe, notwithstanding cocaine; reaction severe; only cases benefited, scleritis and acute iridochoroiditis of non-syphilitic type; injections not to be promiscuously employed. *Bull*, iv. B-142.

Intra-venous injections of corrosive sublimate recommended in grave ocular manifestations of syphilis. *Abadie*, iv. B-143.

Subconjunctival injections of 1 or 2 drops of a 1 to 2000 solution of bichloride are useless. Excellent results by injection of half or whole syringeful of bichloride (1 to 2000) in suppurative corneal affections, with bandage. *De Wecker*, iv. B-143.

Cases of corneal maculæ, serous uveitis, and specific iritis favorably affected by subconjunctival injections. Substances used: mercury bichloride, sodium sulphate, sodium chloride; latter valuable in opacities of vitreous. *Sous*, iv. B-143.

Subconjunctival injections may be tried in all inflammations of cornea and uvea in conjunction with general treatment. In acute uveal inflammation may inaugurate violent reaction. *Darier*, iv. B-143.

TURPENTINE, OIL OF. Oil of turpentine internally administered unusually efficacious in chronic otitis, iridocyclitis, iridochoroiditis, and sympathetic inflammation. *Goodman and Ziegler*, iv. B-141.

RETINA, DISEASES OF. Experiments

show erythropsia of normal eyes as well as of eyes deprived of lens caused by dazzling of long duration; such action occurs in normal eyes only at certain level above sea-level, sunlight being stronger and richer in short rays; erythropsia has its origin in retina. *Fuchs*, iv. B-87.

COLOBOMA. Case of association of partial coloboma of macular region with supernumerary tooth. (See illustrations.) *Posey*, iv. B-87.

DETACHMENT OF RETINA. Detachment of retina due to alteration in lymphatic channels when lymphatic channels anterior to ciliary circle altered; simple glaucoma; when posterior, detachment. Treatment: Puncture and counter-puncture of retina and choroid with special ophthalmotome. *Galezowski*, iv. B-94.

Case of retinal detachment; progress downward; upper portion re-attached. *Brunner*, iv. B-95.

Case of double progressive detachment of retina. *Sulzer*, iv. B-95.

Case of double retinal detachment, probably due to whooping-cough. *Teillais*, iv. B-95.

Early operation to relieve tension recommended in detachment of retina. *Boucheron*, iv. B-95.

Five cases of retinal detachment treated by iodine injections; cure maintained six years; instrument should be properly constructed and inserted. *Schoeler*, iv. B-96.

Operation in detachment of retina not recommended. *Wicherkiewicz*, iv. B-96.

Galvano-cautery recommended; three cures, two improvements in eleven cases. *Motais*, iv. B-96.

Case of detachment of retina; puncture of sclera with Graefe knife; remarkable, though temporary, result. *Kruedener*, iv. B-96.

Reports on electrolysis in twelve cases of retinal detachment; in recent cases positive electricity to be used; success greater, the more recent the disease; current of 5 milliampères upon eye for one minute only entirely harmless. *Terson*, iv. B-96.

Detachment of retina; sclera opened at site; injection of few drops of 1 to 5000 bichloride into orbital tissues through conjunctival wound; favorable result in one week. *Straub*, iv. B-96.

EMBOLISM OF CENTRAL ARTERY. Case of embolism of central artery of retina, exclusive of temporal branches; visual and pupillary fibres separate; latter possess greater vitality. *Laqueur*, iv. B-88.

Case of embolism of central artery, with microscopical examination. (See illustrations.) *Marple*, iv. B-88.

Late ophthalmoscopical appearances in case of supposed embolism of central artery. (See chromo-lithograph.) *Oliver*, iv. B-88.

Cases of embolism of central artery. *Goode*, *Bouvin*, iv. B-90.

RETINITIS. Chorioretinitis striata formed by coagulation of fibrin of subretinal fluid following detachment; fibrin replaced by connective tissue from underlying choroid, becoming pigmented upon edges. *Caspar*, iv. B-93.

Case of retinitis proliferans with small, somewhat pedunculated swelling, slightly to outer side of macula lutea; numerous small hæmorrhages upon its surface; growth due to difficult absorption of repeated hæmorrhages from retina. *Denig*, iv. B-93.

Three cases of bilateral retinochoroidal degeneration, associated with anterior and posterior cataracts, in same family; belong to class of retinal-pigment degeneration. *Cutler*, iv. B-93.

Specific retinitis frequently overlooked in hereditary syphilis; to be sought for all diffuse corneal inflammations in early stage; children from 5 to 18 months most often affected; specific treatment. *Hirschberg*, iv. B-93.

Case of hereditary familial retinitis pigmentosa. *Roy*, iv. B-94.

TUMORS OF RETINA. Case of recurrent glioma of retina. *Ball*, iv. B-96.

Case of glioma of retina; removal of contents of orbits; no return two years later. *Botler*, iv. B-97.

Case of glioma of retina; removal in second stage; tension normal. *Shute*, iv. B-97.

Case of gliosarcoma of retina, with pathological report. *Nattini*, iv. B-97.

MISCELLANEOUS. Case of disappearance of medullated nerve-fibres in retina in locomotor ataxy; axis-cylinders remain active after medullary sheath gone; intraocular degenerations the result of descending atrophy disproven. *Wagenmann*, iv. B-94.

Case of primary recurrent retinal hæmorrhage. *Henry*, iv. B-91.

Case of thrombo-phlebitis of central retinal vessels of left eye. *Würdemann*, iv. B-92.

Cases of striated affections of retina; arise through elements of peripheric hæmorrhages diffused in a linear manner in deep layers of retina, undergoing various metamorphoses. *Holden*, iv. B-92.

VITREOUS, DISEASES OF. Case where numerous hæmorrhages occurred monthly into vitreous in heredo-syphilitic girl, ceasing on establishment of menstruation. *Pressel*, iv. B-87.

Case of hæmorrhage into vitreous following anger; vision improved by electricity. *Abadie*, iv. B-87.

Small leaden shot removed from vitreous by specially-constructed forceps. *Terson*, iv. B-87.

WOUNDS, INJURIES, AND FOREIGN BODIES. Working-men advised to wear

EYE, DISEASES OF (continued).

protecting-glasses against foreign bodies. *Rosmini*, iv. B-100.

Report on experimentally infected diseases of eye; Fränkel's pneumococcus, Friedländer's bacilli, sarcinæ, saprophytic bacilli of decaying fish, cholera spirilla, typhus bacilli, diphtheria bacilli, and streptococci. *Perles*, iv. B-105.

Report on purulent metastatic ophthalmitis. (See text.) *Axenfeld*, iv. B-104.

Report of twenty cases of tetanus following traumatism of eye and orbital tissues. Case following penetrating wound of eye produced by piece of hot metal; death. *Fromaget*, iv. B-108.

From experiments conclusion that the most important step in operating is to have perfectly clean instruments; danger of an infected conjunctival sac not so great; mechanical cleansing of sac sufficient. *Bach*, iv. B-104.

Report on mode of healing after optic neurectomy in rabbit; if cicatrization in man same as in rabbit, microbes contained in the globe are unable to travel as far as chiasm after a period ranging from thirteen weeks to eighteen months. *Velhagen*, iv. B-107.

Case of luxatio bulbi. Optic atrophy, following severing of nerve, does not show itself for some time; temporary blindness due to stretching of optic nerve or circulatory changes within it; eye to be replaced by increasing pressure upon globe, and oiled spatula placed under upper lid; partially separated nerve to be sutured; if avulsion too great or globe cannot be replaced, enucleation. *Chalupecky*, iv. B-99.

Shot wounds of eye not to be interfered with immediately; wounds to be dressed antiseptically, and developments awaited. *Ovio*, iv. B-101.

Case of extra-ocular gunshot wound causing band of choroidal atrophy and severing optic nerve behind eye. *Bourgeois*, iv. B-100.

Three cases of shot wounds of the eye with binocular blindness following suicidal attempts. *Gottberg*, iv. B-101.

Case of injury of globe by ball; three distinct ruptures of choroid, concentric to optic disk, in macular region. *Fage*, iv. B-100.

Apparently slight injury of orbit, with rupture of orbit followed by detachment of retina and chronic glaucoma. *Van Nieuwenhuyzen*, iv. B-100.

Methods of localizing large and steel foreign bodies situated in eye. *Asmus*, iv. B-100.

Eyes with perforating wounds to be given ample time for recovery under treatment. *Curry*, iv. B-103.

Corneal cicatrices with incarceration of iris afford constant danger of infection and consequent panophthalmitis. At beginning infected point to be cauterized; subconjunctival corrosive-sublimate injections recommended; if phlegmon well established and eye not perforated, enucleation; if eye perforated, amputation of interior segment. *Terson*, iv. B-103.

Piece of glass in anterior chamber; corneal opacity; removal of body; diminution of corneal opacity. Prolapse of iris prevented by making incisions obliquely through cornea, so that outer will be higher than inner. *Wagenmann*, iv. B-101.

Piece of steel removed from iris; vision restored to normal in five days; all irritative signs gone, showing quick subsidence by immediate operative interference and careful after-treatment. *Oliver*, iv. B-101.

Case of foreign body in vitreous removed by magnet. *Miquet*, iv. B-101.

Case where iron body 2 by 1 millimetres remained quietly in anterior chamber for two and a half years. *Wintersteiner*, iv. B-102.

Case of cellulitis following Mule's operation, necessitating enucleation of remaining stump three months after evisceration. *Stephenson*, iv. B-106.

SYMPATHETIC OPHTHALMIA. Case of sympathetic ophthalmitis; counter-evidence to infectious theory. *Hilgartner*, iv. B-106.

Four cases of sympathetic uveitis with two permanent recoveries. An affection of extreme gravity; best treatment preventive. *Rogman*, iv. B-106.

Ophthalmia migratoria better term than ophthalmia sympathetica; immediate removal of primarily affected eye; panophthalmitis not a contra-indication. Frequent dressing, washing of socket with mercury-bichloride solution, side-position of head, and drainage. Exenteratio bulbi never to be performed. *Pfister*, iv. B-106.

Case of sympathetic inflammation preceded by sarcoma of choroid of exciting eye. *Nieden*, iv. B-107.

Anatomical study of two sympathizing eyes, one containing cysticercus. In second case micro-organisms discovered in optic sheath. *Pincus*, iv. B-107.

Bacteriological examination of twelve exciting eyes; in only one case organism found. *Bourgeois*, iv. B-107.

Case of eye containing for seven years a piece of bronze; no pronounced inflammatory reaction nor symptoms of irritation. *Lagrange*, iv. B-102.

TREATMENT. Foreign bodies may remain quietly in eye for some time before causing inflammatory symptoms. When second eye blind, injured eye to be treated expectantly; encapsulation of foreign body favored by absolute rest in bed with head somewhat elevated. *Knapp*, iv. B-102.

Copper particles in eye to be removed;

copper may produce purulence by mere thermal action, subsiding rapidly after removal of body and not causing sympathetic ophthalmia. *Leber*, iv. B-105.

Modified evisceration (évidement) recommended for panophthalmitis; can be done with cocaine. *Truc*, iv. B-108.

Evisceration preferable to enucleation; easier; less apt to be followed by panophthalmitis. Evisceration especially indicated in arterio-sclerosis, panophthalmitis, traumatic cases, in shrunken globe, and where cosmetic effect is desired. *Mulder*, iv. B-107.

Larger and firmer stump after enucleation by producing organization of a blood-clot under conjunctiva. *Venneman*, iv. B-107.

In penetrating wounds of ciliary region and lens, even where light-perception is gone and where usually enucleation is performed, removal of lens will often be followed by recovery of comparatively useful vision; operation to be performed during first week of injury. Irritating solutions to be avoided. After-treatment: Atropine, 1 per cent., every four hours, and compress bandage. Unless rapid improvement, enucleation. *Randolph*, iv. B-102.

Foreign body in lens; cataract to be allowed to ripen and inflammatory symptoms to subside; lens then removed with body. Magnet advised in all cases of foreign body of iris. *Gruenthal*, iv. B-103.

In corneal wounds with tendency to separation of edges; conjunctiva dissected up from edge of cornea to insertions of recti muscle and two portions united in median line. *De Wecker*, iv. B-103.

Scleral suture recommended; contra-indicated when eye contains foreign body or when conjunctiva intact. *Fage*, iv. B-103.

MISCELLANEOUS REMEDIES AND INSTRUMENTS. Mercury bichloride recommended in interstitial keratitis, choroiditis, and neuroretinitis. *Baker*, iv. B-142.

Mercury-bichloride (1 per 1000) subconjunctival injections of no value in hypopyon keratitis, corneal ulcer, or diffuse keratitis; may be more useful in iritis and chorio-retinitis. Three cases of infected wounds of eye treated without effect. *Schmidt-Rimpler*, iv. B-142.

Mercury-bichloride subconjunctival injections not to be made too deep into Tenon's capsule or too near limbus corneæ. Bichloride far superior to sodium chloride. Pain relieved by 1-per-cent. cocaine in injected fluid; no alcohol. *Darier*, iv. B-142.

Mercury-bichloride subconjunctival injections valuable not only in syphilitic disease of eye, but in phlyctenular conjunctivitis and keratitis. *Da Gama*, iv. B-142.

Beneficial influence of subconjunctival injections due to stimulation of lymphatic circulation, hastening removal of infectious material. Mercury-bichloride injection painful and resulting in obliteration of subconjunctival space by adhesive inflammation. Sodium-chloride solution equally efficacious without any objections; 2-per-cent. solution in hypopyon keratitis, keratitis ulcerosa, kerato-iritis, and choroiditis suppurativa. *Mellinger*, iv. B-142.

Magnified image of cornea, iris, and anterior surface of lens obtained with ophthalmometer of Javal and Schiötz. *Southard*, iv. B-144.

Blanks for sketching the fundus oculi. *Berens*, iv. B-144.

Orbital measurer for taking diameter of that cavity. (See figure.) *Wicherkiewicz*, iv. B-144.

Best instrument for measuring intra-ocular tension is the tonometer of Maklakoff and Fick, constructed by Verdin, of Paris. *Ostwalt*, iv. B-144.

New phorometric table-bracket. *Soulé*, iv. B-145.

Improved phoroscope. *Aitkin*, iv. B-145.

Modification of Javal's ophthalmometer. *Valk*, *Skeel*, iv. B-146, 147.

New trial-frame. *Haddæus*, iv. B-147.

Portable apparatus for sterilizing dressings and instruments. *Despagnet and Velois*, iv. B-147.

New safety eye-speculum. *Whitney*, iv. B-148.

Modified lid-elevator for irrigating conjunctival *culs-de-sac* in the treatment of purulent conjunctivitis. *Callan*, iv. B-148.

New fixation-forceps. *Dujardin*, iv. B-148.

Pair of double forceps for perfect fixation of eyeball. *Holmes*, iv. B-148.

New irrigator for *culs-de-sac*. *Lagrange*, iv. B-148.

Modified Knapp roller-forceps. *Campbell*, iv. B-148.

New cilia-forceps. *Allport*, iv. B-149.

New instrument resembling straight keratome for treatment of chronic conjunctival affections. *Peters*, iv. B-149.

Disadvantages of monocular vision are: loss of power to interpret relative position of objects, contraction of field of vision, decrease of alertness of vision, and diminution of alertness for color-vision. *Whitehead*, iv. B-149.

Human eyes from cadaver for use in phantom preserved by placing for five to seven days in formol, aqueous solution 0.1 per cent. to 0.05 per cent. If necessary after this, in 1 to 5000 thymol solution. *Dandangosky*, iv. B-149.

Yellow oxide-of-mercury ointment reduced by light. Salve to be kept in absolutely opaque receptacle or dark room. Best base equal parts of lanolin and water with two parts of vaselin. Red precipitate, iodoform, beta-naphthol, pyrogallol, and resorcin salves also decomposed by light.

FÆCAL FISTULA.

TREATMENT. Safe and uniformly successful method: enterorrhaphy without opening general peritoneal cavity, by detaching from parietes all around fistula or artificial anus sufficient peritoneum to permit delivery of gut through parietal incision without separating it from its peritoneal adhesions. Opening in gut can be closed as satisfactorily and speedily by apposition of rough cicatricial tissue on its surface as by apposition of intact peritoneum. *J. Greig Smith*, iii. C-81 to 83.

Packing the opening with gauze or cotton a very inefficient way to prevent fæcal extravasation; clamps and ligatures on each side of opening in bowel equally unreliable. Only safeguard preliminary closure of intestinal opening by very close suturing. Field of operation again thoroughly sterilized before abdomen opened and intestine detached. *Senn*, iii. C-82, 83.

Artificial anus can be treated by four methods: enterotomy, when cases uncomplicated and aperture easily accessible, with thin and long partition; resection, when intestine friable and lacerated; longitudinal enterorrhaphy, when enterotomy contraindicated; entero-anastomosis, when intestine very friable at seat of artificial anus, or when considerable constriction of bowel near external aperture. *Chaput*, iii. C-84.

In two cases of iliac anus in women, following pelvic suppuration, obturation of intestine by forceps; complete isolation and withdrawal from abdomen, suture, and replacement. *Zancarol*, iii. C-84, 85.

Method by which a bridge of normal skin separates openings into upper and lower portions of sigmoid; no chance of fæces finding their way into rectum. *Bidwell*, iii. C-85.

FAVUS.

Among etiological factors contagion, mediate or immediate, occupies first place; transmission from animals, however, less frequently than from man. Saprophytic existence of the achorion possible, and man may meet with it in nature. *Bodin*, iv. A-26.

Favus very sensitive to high temperatures. Scalp covered with compress wet with sublimate solution 2 to 1000; upon this a series of Leiter's tubes, through which water, at a temperature of 140° to 150° F., allowed to flow. Application made daily for twelve hours during eight days. In three out of four cases complete cure obtained. *Zinnser*, iv. A-27.

FEVER.

PATHOGENESIS. Fever and leucocytosis should be regarded as of assistance to the system in combating the effects of infection; therapeutic benefit may be derived from the use of means tending to increase these conditions rather than from those calculated to antagonize them. *Loewy and Richter*, i. G-1.

[The leucocytosis produced by fever materially aids the patient to throw off the infective cause. The practical question which confronts the physician at the bedside, however, is not the abolition of pyrexia, which he knows is impossible, but to what extent it should be controlled. JUDSON DALAND, Assoc. Ed., i. G-2.]

Fever-producing substance obtained from the same species of bacteria acts variously in different animals; temperature of some remains unaltered or but slightly elevated; in others, a high fever produced. *L. Krehl*, i. G-2.

Subnormal temperatures occur much more frequently than is generally supposed, depression under 91.4° F. by no means rare. Low temperatures *per se* are not grave prognostic indications; unfavorable when they occur and persist in cachectic patients. *Janssen*, i. G-2, 3.

[The temperature in pernicious anæmia is usually at or about normal, interrupted at irregular intervals by a moderate irregular fever of uncertain duration,—usually two weeks or less. The occurrence of subnormal temperature is uncommon. JUDSON DALAND, Assoc. Ed., i. G-3.]

When antipyrin in a sufficient dose does not lower temperature it is a prognostic sign of ill omen. *Comby*, v. A-26.

FIBROID OF THE UTERUS.

See UTERUS.

FILARIA.

A species resembling Manson's filaria perstans common in Congo, but not productive of appreciable disorders. *Firket*, i. D-79, 80.

Removal of filaria from human eye. *Lecompte*, i. D-80.

Removal of a filaria from the eye of a horse. *Neve*, i. D-80.

Antiseptic surgery renders the removal of filarial lymphatic varices possible without risk. *Maitland*, i. D-80.

TREATMENT. Methylene-blue, 2 grains every four hours during the day. *Flint*, i. D-80, 81.

Thymol not a curative agent for filarial disease as represented. *Crombie*, i. D-81.

FISTULA IN ANO.

TREATMENT. Not only does a local destruction of tissue take place, followed perhaps by septic infection, but the tubercle bacillus has to be dealt with. Removal of all the tissue with curette. When edges flabby and fall into the wound, trimming. They impede healing process and are infected with bacilli. *Mathews*, iii. D-30, 31.

Palliative measures should only be used for a short time. Long-continued suppuration always tends to amyloid degeneration of viscera, with general disturbances. Sphincters should never be severed at more than one place. Unless all channels laid open operation will fail. *Bacon*, iii. D-31.

All cases treated with the knife or not at all. *Eliot*, iii. D-31.

Modification of Lange's method. Fistulous tract opened, indurated tissue surrounding it cut out, thus converting it into simple healthy wound; then bringing raw surfaces together. *Cook*, iii. D-31.

Case of pilonidal fistula. Existence of a channel between two openings demonstrated by the injection of peroxide of hydrogen; more satisfactory than the probe. *Page*, iii. D-31, 32.

Tunneled fistulatome to introduce filiform bougie through fistulous tracts. *Walker*, iii. D-32.

FLOATING KIDNEY. See KIDNEY, DISEASES OF.

FLOATING LIVER. See LIVER, DISEASES OF.

FRACTURES.

FRACTURES IN GENERAL. Incision and fixation of fragments by screws give better results than fixed dressings. Challenge to those who do not agree with this view to prove their opinion by statistics. *Arbuthnot Lane*, iii. I-1.

Practical results supporting Lane's conclusions. *Biddoe*, iii. I-1.

[Personal investigation of twenty-six cases of fracture of lower extremity showing distinctly better results than Lane's. L. A. STIMSON, Assoc. Ed., iii. I-1.]

Report of results of ambulatory treatment in 180 cases. Period of repair shortened; general condition less impaired; joints remain more movable. *Bardeleben*, iii. I-2.

Cases in which ambulatory treatment employed. *Warbasse*, *Cabot*, *Bloch*, iii. I-2.

Priority of ambulatory treatment due to Raoult-Deslongchamps, who used it twenty years ago. *Rendu*, iii. I-2.

[Reports do not seem to show any gain over ambulation with crutches. L. A. STIMSON, Assoc. Ed., iii. I-2.]

Early mobilization of neighboring joints and massage. Period of consolidation shortened by one-third; full functional activity returned correspondingly sooner. *Lucas-Championnière*, *Landerer*, *Bum*, iii. I-2.

Contra-indicated in fractures of shaft of long bone with notable deformity and mobility, especially in oblique and torsion fractures. *Bum*, iii. I-2.

Union obtained in two cases of ununited fractures of femur of six and nine months' standing, by passive congestion, obtained with India-rubber tourniquet around limb a short distance above fracture. Failure in two cases of fracture of humerus. *Caird*, iii. I-2, 3.

Early resort to operation in delayed union to save time and diminish muscular atrophy. *Rioblane*, iii. I-3.

Reports of results obtained by classical methods in compound fractures. *Pershing*, *Schönwerth*, *Angerer*, *Fulton*, iii. I-3.

REGIONAL FRACTURES.

CLAVICLE. Case in which loss of function of limb was due to splinter, removal of which caused recovery. *Mauclaire*, iii. E-4.

CRUCIAL LIGAMENTS OF KNEE. Case in which crucial ligaments and tibial spines to which they were attached torn away. *Bayeux*, iii. I-6.

FEMUR. Successful resection of head of femur a year after fracture of femoral neck because of failure of union and uselessness of limb. *Lejars*, iii. I-5.

HUMERUS. Experiments showing that, in full flexion after fracture of either condyle, transverse or T-fracture, lower fragment less easily displaced than in any other attitude. *H. L. Smith*, iii. I-4.

Full flexion in thirty cases; motion slightly greater; deformity much less than obtained from current measures, provided accurate preliminary reduction of displacement insured. *H. L. Smith*, iii. I-4.

[Proper reduction of fragment prime essential in other forms of dressing, which furnish equally good results in some hands. L. A. STIMSON, Assoc. Ed., iii. I-4.]

As arm-support, an acute-angle sleeve, the ends extending far enough to be tied behind the neck. *A. Post*, iii. I-5.

PATELLA. Exposure of seat of fracture by incision; clearing of joint; approximation and retention of fragments by instrument resembling Malgaigne's hooks. *Fowler*, iii. I-5.

General deprecation of operative interference as routine treatment. *New York Surgical Society*, iii. I-5, 6.

RADIUS. Fracture of lower end not due to cross-strain through palmar ligaments in hyperdorsal extension of wrist. Force transmitted from the carpus to humerus. *Hennequin*, iii. I-5.

In Colles's fracture, splints discarded; limb simply supported in a sling, the hand hanging unsupported in ulno-volar position after reduction. *Petersen*, iii. I-5.

SKULL. Crossed otorrhagia, a new sign of fracture of the vault, due to complete fracture of petrous bone on the opposite side of that of injury. *René le Fort*, iii. A-8 to 10.

Case of fracture in which death seemed to have been due to rupture of the internal carotid. *Savariaud*, iii. A-10.

Case of fracture complicated by traumatic

FRACTURES (continued).
epilepsy and impulsive insanity. *Ortiz*, iii. A-10.

Case of fracture with supra-orbital pulsating tumor. *Shepherd*, iii. A-10.

Case of compound fracture of forehead sufficient to produce marked frontal concavity. Survival thirty years. *J. Wherry Wilson*, iii. A-10, 11.

Case in which symptoms of compression persisted thirty-four days after punctured wound involving superior longitudinal sinus. Recovery. *Tubby*, iii. A-11.

Case complicated by tears in longitudinal sinus; threatened hernia cerebri; plastic operation. Recovery. *Seydel*, iii. A-11.

Successful plastic operation for hernia cerebri. *Bernays*, iii. A-11.

Violent epileptic attacks with subjective signs of fracture following a fall, arrested by exploratory craniectomy. *Dasara, Roth*, iii. A-11.

Successful trephining for fracture at sea. *J. Tertius Clarke*, iii. A-12.

Recovery from compound fracture of skull and severe laceration of brain in an infant 2 months old. *Mastin*, iii. A-12.

Cases illustrating the tolerance of the brain in connection with severe injuries. *Link*, iii. A-12.

If blindness and aphasia due to pressure are not increasing, incision of dura should be deferred—say, a fortnight—to give time for possible absorption. *A. H. Wilson*, iii. A-12.

Convergent squint after fracture due probably to injury of brain-substance. *Tamiesie*, iii. A-12.

Successful result in case of fracture involving the cavernous sinus. *Watson*, iii. A-12.

Outward displacement of bone in fracture of skull. *Dale*, iii. A-13.

Case of fracture with rupture of internal carotid. *Stenhouse*, iii. A-13.

Head injury, paralysis of opposite arm, followed by brain-fungus. *Harbin*, iii. A-13.

Urgency in operating upon compound fractures of skull not so great as in the case of extremities. Fractures of frontal bone not so dangerous as generally thought to be. *Ashhurst*, iii. A-13, 14.

Brain injuries not treated with sufficient promptitude may die of hæmorrhage on this account. Better open skull unnecessarily than let patient die for want of operation. *James Bell*, iii. A-14.

Wise to operate immediately, even in simple fractures of the skull. *California Academy of Medicine, Shiels*, iii. A-14.

SPINE. In early operation: recoveries, 86 per cent.; expectant plan, 22 per cent. *Burrell*, iii. I-3, 4.

Operation in three cases. Recovery of fair use of limbs in one case. *Arnison*, iii. I-4.

Two cases of cervical fracture,—one recovery without and one recovery with operation. *Ringwell, Winnett*, iii. I-4.

[It does not appear that in Arnison's, Ringwell's, and Winnett's successful cases the operation aided in the recovery. L. A. Stimson, Assoc. Ed., iii. I-4.]

TIBIA. Case of fracture by compression of upper end. *Albers*, iii. I-6.

Death by fat-embolism of lung twenty-four hours after fracture of astragali and left tibia. *Finotti*, iii. I-6.

Six cases of compound fracture of ankle-joint. *Balch, Pilcher*, iii. I-6.

Splints made of wood-pulp strengthened by introduction of a woven fabric or jute-fibre. *Taylor*, iii. I-6.

FRIEDREICH'S DISEASE.

[A considerable amount of clinical material has been published which appears to indicate that anatomically there are two varieties of hereditary ataxia,—one spinal and one cerebral. H. Obersteiner, Assoc. Ed., ii. B-47.]

PATHOGENESIS. Both forms ascribed to one and the same disease group, of an hereditary nature; in the one arrested development primarily in cerebellum, in the other in the spinal cord. The entire cerebellar and spinal systems may be simultaneously affected in one and the same individual. *Londe*, ii. B-47.

Hypoplasia of the cerebellum not always combined with disturbances of co-ordination. *König*, ii. B-47, 48.

Cases in two sisters who appeared after most careful examination to belong to a very healthy family. *Verhoogen*, ii. B-48.

Three cases showing intellectual disturbances during the course of Friedreich's disease. *J. Hoffmann*, ii. B-48.

Two cases with no hereditary tendency, showing pronounced weakness of intellect, with attacks of loss of consciousness. *J. Hofmann*, ii. B-49.

A case in a family in which number of marriages had taken place among blood-relations. *Sidney Small*, ii. B-49.

Cases in two sisters; athetoid attitude in walking, dorso-lumbar lordosis; forearms pronated, wrists flexed. *Londe, Lagrange*, ii. B-49.

Post-mortem of a case whose two sisters suffered from the same disease. Morbid changes, affecting chiefly posterior columns. Feature of great interest, a tumor of the cerebellum which had almost destroyed its right hemisphere. *J. M. Clark*, ii. B-49.

Peculiar form of hereditary family ataxia in thirteen members of a family during four generations. Manifested itself from 50 to 72 years. *Irwin Neff*, ii. B-49.

FRIEDREICH'S PARAMYOCLONUS MULTIPLEX.

Not a morbid entity, but simply a special form of myoclonus. A symptomatic manifestation of neurasthenia always hereditary, patients predisposed to most varied affections of nervous system. Myoclonus probably of cortical or subcortical origin. Treatment acts, above all, through suggestion. *Raymond*, ii. C-28.

FROST-BITE.

For pain, ichthyol; when parts become raw and exposed, acetanilid-ointment. *Hermance*, iv. A-27.

FURUNCULOSIS—BOILS.

TREATMENT. Gouty patients who have neither diabetes nor albuminuria frequently troubled with furunculosis. Prolonged use of extract of colchicum, ½ grain daily. *Brocq*, iii. M-17.

If case seen early, crystallized carbolic acid on the point of a sound, heated to melting-point, pressed on furuncle. *Antonewicz*, iii. M-17.

Camphorated salol of especial value. *Elsenberg*, iii. M-17.

Beer-yeast, one teaspoonful night and morning. *Gobert*, iii. M-18.

Sedative effect of high-tension, rapidly-interrupted induction of very great value. *O. L. Williams and S. H. Monel*, v. B-8.

A 10-per-cent. gauze of europhen as dressing. *Dörmer*, v. A-72.

GALACTOCELE. See MAMMARY GLAND, DISEASES OF.

GALL-BLADDER AND DUCTS.

CANCER. Much less uncommon than formerly believed. Pain in 62 per cent., jaundice in 69 per cent., tumor in 68 per cent.; emaciation, indigestion, nausea, vomiting, constipation, or diarrhœa; occasional ascites and œdema. Always fatal. *Musser, Ames*, i. C-78.

Gall-stones in 93 per cent. of cases probably causative. *Ames, Graham*, i. C-79.

No calculi found post-mortem in a case, although diagnosis of cholelithiasis had been made during life. *Bouglé and Polliet*, i. C-79.

Glycosuria in cases in which a cancer had destroyed the gall-bladder and pancreas. *Oesterreich, Ewald*, i. C-79.

When destruction of pancreas rapid, glycosuria present, *Marcuse*, i. C-79.

ETIOLOGY AND PATHOLOGY. The bacterium coli and streptococcus are present in parietal concretions. *Létienne*, i. C-75, 76.

A solitary attack of colic followed by jaundice, which persisted six years. Impacted gall-stone found post-mortem. *Chadwick*, i. C-76.

Voluminous calculi spontaneously expelled through abdominal wall. *Guépin, Pilcher*, i. C-76.

Cases with intermittent pyrexia. *Root, Latham*, i. C-76.

Possibly due to septic infection of liver from common duct. *Latham, J. B. Murphy*, i. C-76.

Certainly not of septic nature. *Kinnicutt*, i. C-76, 77.

Fatal case with formation of gas in liver, probably produced by coli bacillus, found at necropsy. *Hintze*, i. C-77.

Case of fatal hæmatemesis from ulceration of calculus into duodenum. *Duffett*, i. C-77.

Case of fatal hæmorrhage from aneurism of hepatic artery in a case of cholelithiasis. *Schmidt, Marion*, i. C-77.

CHOLELITHIASIS OF GALL-BLADDER.

DIAGNOSIS. Catarrhal jaundice; cancer of liver, pancreas, gall-bladder, or ducts; malaria, or cardiac disease may give rise to symptoms simulating stone in common duct. *Webster*, i. C-75.

Absence of colic usually relegates diagnosis to autopsy. Dull pain, vomiting, and occasionally palpitation of gall-bladder are symptoms observed in such cases. *Benedict*, i. C-75.

Confusion possible between gall-bladder and kidney when both movable. But gall-bladder moves in a circle, with point beneath right lobe of liver. Gall-bladder generally felt; movable kidney often not. Distended gall-bladder much harder than kidney. Possible history of jaundice to clear diagnosis. *H. Morris*, i. C-75.

When attacks of biliary colic and distension suddenly subside and no stone is passed, the stone has dropped into bladder. If repeated attacks of biliary colic, bladder being enlarged and jaundice is present, the stone is lodged in ducts. Persistent tenderness over gall-bladder indicates subacute inflammation by irritation of a stone. Results apt to be gangrene, ulceration, perforation causing peritonitis, and cancer. Persistent marked enlargement shows the presence of a large number of stones or of a tumor. *Ferguson*, iii. C-32.

MEDICAL TREATMENT. Case illustrating the value of olive-oil treatment. Remarkable results in a case with calomel (5 grains) at night and olive-oil (8 fluidounces) next morning, kept up for some time. *Gubb*, i. C-77, 78.

Six gall-stones passed within one day and no recurrence for a year. *Stephenson*, i. C-78.

Initial dose, 1 ounce, gradually increased to 8 ounces, with mild saline two or three times a week. Continued one and a half to three months. *Michell Clark*, i. C-78.

Rectal injections of two-thirds to one pint pure warm oil, then every two or three days. *Blum*, i. C-78.

GALL-BLADDER AND DUCTS (continued.)

Injection of oil for impacted calculus instead of operation. *Brockbank*, i. C-78.

Careful watching of pleura; aspiration or pleurotomy if needed. *Galliard*, i. C-78.

SURGICAL TREATMENT. Indications for biliary operations: acute or persistent symptoms; signs of cholelithiasis unrelieved by medical treatment. Escape of bile into peritoneal cavity not dangerous provided no septic influence superadded. *Robson, Kehr, Thiersch*, iii. C-28.

Experiments demonstrating that the peritoneum is capable of bearing presence of small amount of bile, but that large quantities or constant extravasation would produce fatal peritonitis. *Davis*, iii. C-28, 29.

Experiments failing to corroborate results obtained by Oddi, that dogs, after removal of gall-bladder, suffered great hunger, diarrhœa, and emaciation, and that later dilatation of the gall-ducts occurred. *Nasse*, iii. C-29.

A pouch to be found behind right lobe of liver which has natural barricades separating it from the general peritoneal cavity; efficient drainage of this pouch likely to serve a useful purpose in gall-stone operations. Can be efficiently drained by opening in parietes near lower end of kidney. *Morison*, iii. C-29 to 31.

Usual incision is three inches long in upper part of right linea semilunaris. Rectangular incision preferred. *Czerny*, iii. C-31.

Transverse incision just below ninth or tenth costal cartilage. *Courvoisier*, iii. C-31.

Exploratory incision indicated when biliary retention has persisted for three months without amelioration. Not always easy; when adhesions, relations changed; following course of umbilical vein,—ductus choledochus on a plane oblique to it. *Quénu*, iii. C-31.

Case of dilated gall-bladder, supposed to be ovarian. Pyriform swelling extending below umbilicus, the size of a small child's head. *Cameron*, iii. C-33.

Case of dilated gall-bladder in which post-mortem revealed another stone, though three had been removed. *Bishop*, iii. C-33.

Enlarged gall-bladder with linguiform appendix of the liver. Case illustrating malformation of liver described by Charcot as frequently accompanying cholelithiasis. *Hellier*, iii. C-33.

CHOLECYSTOSTOMY. Suturing gall-bladder to anterior aponeurosis of right abdominal muscle through button-hole incision in thickness of the muscle. *Delagénière*, iii. C-34.

Method avoiding peritonitis and giving firm adhesions. Bladder drawn through abdominal wound, portion about size of hen's egg sutured until adhesions formed, and peritoneal cavity closed. Gall-bladder then opened, gall-stones removed. Steps of operation reversed, external wound being finally closed. *Bloch*, iii. C-34.

Incision of ducts or gall-bladder, followed by immediate suture, the proper operation in the majority and, especially, in recent cases. *Elliott*, iii. C-34, 35.

Five cases of cholecystostomy, in two stages. Interval of eight or nine days sufficient between two stages, instead of twelve. *Löwenstein*, iii. C-35.

Stone removed the size of a walnut having the form of an outgrowth of the gall-bladder into the cystic duct. *Helferich*, iii. C-35.

Successful cholecystotomies. *Mixter, Bland Sutton, Weeks, Porter, Battle, de Heideken, Wm. Anderson, Shepherd, Dunning*, iii. C-35.

CHOLECYSTECTOMY. Indicated in cases in which changes in wall of bladder prevent re-establishment of physiological functions, as in tumor or empyema. *Vautrin*, iii. C-35.

Cholecystectomy in case of dropsy of gall-bladder due to calculi. Death from septic peritonitis. *Ringstedt*, iii. C-35.

CHOLECYSTDUODENOSTOMY. Ideal operation consists in making an anastomosis between the gall-bladder and duodenum. Thirty-four cases with Murphy button, thirty-three recoveries. *Hoelscher*, iii. C-35, 36.

CHOLECYSTENTEROSTOMY. Button a most valuable aid in such cases, though danger of lodgment in intestinal tract not trivial. *Moffatt*, iii. C-36.

In an attempt to use Murphy's button, found impossible to articulate two ends; anastomosis done by sutures. *Delbet*, iii. C-36.

CHOLELITHIASIS OF BILE-DUCTS.

DIAGNOSIS. In abdominal surgery, generally, it is often impossible to make an accurate diagnosis; surgeon must be prepared to alter plan of procedure at any moment. *Jordan*, iii. C-36, 37.

Jaundice satisfactory evidence of biliary obstruction. Pain in the region of gall-bladder coming at intervals, with jaundice or clay-colored stools, positive proof of biliary obstruction. Persistent clay stools most reliable symptoms for operative interference. *Ricketts*, iii. C-37.

TREATMENT. Stones in cystic duct can usually be pushed out by manipulation; duodenal aperture of common duct too small to permit this. Cholelithotripsy risky from possibility of serious damage to duct-wall; choledochostomy rarely practicable. Choledochendysis appears to be the best operation. *Terrier*, iii. C-37, 38.

Cholecystenterostomy, though easy of per-

formance, is a faulty operation. The only rational procedure in obstruction of common duct by stone is removal. If patient is too exhausted, biliary fistula through the abdominal wall. *McGraw*, iii. C-38.

Two cases in which the distended gall-bladder felt so tense and movable as to suggest floating kidney. *Richardson*, iii. C-38.

Among seventy-seven laparotomies for gall-stone, twenty-six cases of incarcerated concretions in cystic duct. In seven cases direct excision of stone from the duct, sewing up opening through which stone removed. *Kehr*, iii. C-38, 39.

Danger of pushing stones floating in common duct into hepatic duct and out of reach while manipulating. *Fenger*, iii. C-39.

Operation in jaundice from malignant obstruction warranted in cases in which the obstruction is located below cystic duct. *Russell*, iii. C-39.

Dilatation of common bile-duct simulating distension of gall-bladder. *Edgeworth*, iii. C-39.

Case of perforation of gall-bladder following typhoid fever, successfully treated by abdominal section. *Monier-Williams and Shield*, iii. C-39, 40.

Infectious suppurative angiocholitis and cholecystitis with peritonitis and serofibrinous pleurisy due to coli bacillus, cured by cholecystectomy. *D'Allocco*, iii. C-40.

Case in which the liver was plainly nodular. At autopsy, carcinoma of gall-bladder, liver, pancreas, and transverse colon. *Foote*, iii. C-40.

Injection of olive-oil or oleic acid, warmed up to body-heat, into gall-bladder and ducts through fistulous opening in a case. *Brockbank*, iii. C-40.

GANGRENE. See AMPUTATIONS.

GANGRENE OF THE LUNGS. See LUNGS, DISEASES OF.

GASTRIC OPERATIONS.

GASTROTOMY. Frank's method acquiring considerable support. Small abdominal incision, portion of stomach drawn out through opening. Base of projecting mass then fixed to peritoneal edges of wound, its free outer portion passed under a bridge of neighboring integument raised for the purpose, and finally brought out through a second wound made over the margin of the ribs, to the edges of which gastric walls are fixed by a second row of sutures. Does away with discomfort caused by severe eczema and ulceration. ED., iii. C-11.

Nine cases in which above plan used with most satisfactory results. Wounds healed quickly and well, no overflow of food or gastric-juice. *H. Lindner*, iii. C-12.

Successful case operated by Monnier; objection to time required to perform operation and to fact that two sittings are necessary. *Picque*, iii. C-12.

Case in which, having removed ligatures on tenth day, hernia of stomach followed a severe paroxysm of coughing. *Michaux*, iii. C-12.

Five operations. Secondary incision, found difficult to perform by some surgeons, considered quite simple. To simplify it a thread may be passed through the gastric wall; the latter being raised by drawing upon the thread, the incision can easily be kept within easy reach. *Schwartz*, iii. C-12.

Forty-eight hours' delay a great objection to the operation, owing to the interference with proper nourishment. *Le Dentu*, iii. C-12.

Modification of Frank's method to strengthen attachment of gastric fold, including in suture not only the parietal peritoneum, but also the musculo-aponeurotic tissues. A sort of canal, simulating an œsophagus, formed, which may be closed at will; stomach held close to the musculo-aponeurotic parietes. *Villar*, iii. C-12.

Case of gastrotomy for foreign bodies,—152 nails of various dimensions, 3 collar-studs, 1 safety-pin, and 1 sewing-needle. Wound healed by first intention; complete recovery. *Mayo Robson*, iii. C-12.

Successful gastrotomy for the removal of three pocket-knives. *Beck*, iii. C-12.

To insure union of the stomach with abdominal walls, stomach should not be opened and patient fed by a cannula similar to Pravaz's, but much larger. Needle pushed through the walls of stomach and fluid food injected. *Fischer*, iii. C-12.

GASTROPEXY. In cases of prolapse of the stomach of long standing, gastropexy an efficient method, both with reference to fixation of stomach and cessation of majority of morbid symptoms. *Duret*, iii. C-13.

Operations for fixation do not always give a favorable result when the organ is almost or entirely full, and also when the organ is much curved. Gastroptosis often coincides with enteroptosis. To insure reasonable chances of success, the organ must simply be displaced and not dilated. *Le Dentu*, iii. C-13.

GASTROPLASTY. A woman in extreme inanition was operated on for hour-glass contraction with distension of both portions of the organ. Anastomotic opening between the two halves made near the dependent portion of each; patient recovered and symptoms relieved. *A. Wölfler*, iii. C-13.

A patient upon whom Bouveret had performed gastroplasty for a bilocular stomach. Recovery uneventful. Third case. *Paul Courmont*, iii. C-13.

GASTRO-PYLORIC OPERATIONS. Most complete statistics of operations upon stom-

GASTRIC OPERATIONS (continued).

ach yet published. Analysis of 359 resections, 176 recoveries and 140 deaths; 50 for ulcer, 30 recoveries and 20 deaths. Total mortality for resection of pylorus, 51 per cent.; for cancer, 54.4 per cent.; for ulcer, 40 per cent. Results in gastro-enterostomy: cases, 288; cancer, 241 cases, 136 recoveries and 105 deaths; ulcer, 47 cases, 35 recoveries, 12 deaths. Total mortality, 41.5 per cent.; cancer, 43.5; ulcer, 25.5. Final results: 30 died one to six months after operation; 12 in six months to one year and ten months; only 2 cases alive and in good health. Of 51 cases of cancer of pylorus and pylorectomy, 18 died within one year, 2 in thirteen months; 13 alive and well more than one year after operation; of these, 4 had gone beyond three years, 1 five years and four months, and 1 eight years. *Haberkant*, iii. C-13, 14.

Review of literature. In 158 cases of pylorectomy: 90 deaths, 43 per cent. of cures; in 123 cases of gastro-enterostomy, 38 deaths, 69 per cent. of recoveries. When circumscribed tumor present, operation should be practiced, always reserving prognosis. *Ewald*, iii. C-14.

Indications for pyloroplasty, pylorectomy, and gastro-enterostomy. Would operate only in marked dilatation; where remains of food ingested previous day are found in stomach in the morning; where condition has existed some time and resisted all dietetic and therapeutic measures; where system is poisoned by products of fermentation, and where strength of patient is failing. *Grundzach*, iii. C-14.

In cicatricial affections of pylorus better results attained by Loreta's operation than by gastro-enterostomy. *Podres*, iii. C-14.

Successful case of pyloroplasty. *Corazza*, iii. C-15.

Statistics of 53 cases for pyloric stenosis; 6 fatal,—2 from collapse, 3 from sepsis, and 1 from internal hæmorrhage. *Miller and Morison*, iii. C-15.

Modification of pyloroplasty. Use of a bone bobbin, which expedites procedure and renders operation safer than suture alone. Three successful cases. *Mayo Robson*, iii. C-15.

Case in which, three and one-half years previously, Loreta's operation for narrowing of the pyloric orifice had been successfully performed. *R. B. Duncan*, iii. C-15.

Two cases of total resection of the pylorus, one fatal. *Kablukow*, iii. C-15.

Case in good health three years after operation of pylorectomy. *T. R. Jessup*, iii. C-15.

New method of treating non-malignant strictures of pylorus: giving patient graduated balls of gutta-percha coated with sugar to swallow. *Ogston*, iii. C-15.

GASTRO-ENTEROSTOMY. Courvoisier's method recommended. Intestine inserted into posterior surface of stomach, the food passing easily through the artificial pylorus. Three rows of sutures, solidly inserted, permit patient to partake of food the following day. *Roux*, iii. C-16.

Sutures preferred to mechanical appliances; in all cases of contraction of anastomotic opening latter had been used. *Bidwell*, iii. C-16.

Notes of thirteen cases: 7 gastrostomies, 4 gastro-enterostomies, 1 Loreta, 1 pyloroplasty. Three deaths: 1 gastrostomy, 1 Loreta, 1 gastro-enterostomy. To be of any use operations must be done fairly early. *Allingham*, iii. C-16.

Three cases of cancerous stricture successfully treated by operation. It is especially in benign cicatricial that gastro-enterostomy gives good results. *Von Hacker*, iii. C-17.

Cases of gastro-enterostomy recorded. *Lesin, Kadjan, Kischkine*, iii. C-17.

Surgical intervention indicated whenever medical and dietetic treatment has failed after a sufficiently-extended trial. *Borelius*, iii. C-17.

Stomachs of ten individuals examined in whom gastro-enterostomy had been performed; delay in progress of stomach-contents almost invariable, hypersecretion becoming a secondary abnormality. *Rosenheim*, iii. C-17.

Study of process of gastric digestion in a man on whom Terrier had performed gastro-enterostomy for pyloric cancer. Gastric symptoms had disappeared; patient had gained thirty-eight and one-half pounds in three months, but stagnation still present; peptic digestion almost inhibited by absence of HCl shortly after meal. Bile and pancreatic juice flowed back into the stomach without causing inconvenience. *Debove, Soupault*, iii. C-18.

To avoid reflux of bile into stomach and accumulation of matters in upper part of intestines after gastro-enterostomy, advisable to operate on loop, distant at least forty or fifty centimetres from the duodeno-jejunal flexure. *Villard*, iii. C-18.

Operation can only become an obstacle to performance of chemical functions of stomach by rendering impossible retention of food for the time necessary. *Hayem*, iii. C-18.

Researches of Rosenheim in analogous instances lead to conclusion that the motor functions of the stomach are of more importance here than the chemical functions. *Albert Mathieu*, ii. C-18.

Three cases of gastro-entero-anastomosis for cancer of pylorus; death in three months in the first case, four months in the second, and on third day in the third; fatal result in latter due to sudden and violent hæmatemesis. *Edmond Blanc*, iii. C-19.

Gastro-enterostomy in a case of inoperable cancer of pylorus; recovery. *G. Houzel*, iii. C-19.

Senn's decalcified-bone plates used in a case of gastro-enterostomy for pyloric stenosis, patient leaving his bed on the fifteenth day. *Thomas Sinclair*, ii. C-19.

Successful case of gastro-enterostomy, by means of Murphy's button, for cancer of the pylorus. *Lenger*, iii. C-19.

GASTRIC ULCER.

ETIOLOGY AND PATHOLOGY. Case illustrating simultaneous presence of ulcer and carcinoma, stomach-contents having shown large quantities of lactic acid, but only traces of hydrochloric acid. *Du Mesnil de Rochemont*, i. C-26, 27.

Hyperacidity frequent, but not invariably present. Cause essentially peptic; trauma possible in poorly-nourished subjects; thrombosis and vascular degeneration likely predisposing elements. *Greig*, i. C-27.

Case illustrating that syphilis may act as cause. *Luxenburg and Zawadski*, i. C-27.

Frequent existence of neuropathic tendency prior to appearance of gastric ulcer, especially in women. *Rendu*, i. C-27.

DIAGNOSIS. Perforation usually occurs when stomach full, during exertion; sudden abdominal pain; perhaps faintness, collapse, death. Abdominal walls retract, muscles rigid, respiration quick and shallow, pulse rapid and feeble. Subsequent symptoms depend upon position of ulcer. *Gilbert Barling*, i. C-27, 28.

Many cases observed post-mortem that have occasioned no trouble during life. Death seldom occurs from ulcer itself, but from complications. *Stoll*, i. C-29.

Neurotic indigestion in young women and ulcer distinguished with difficulty. *Pearse*, i. C-29.

Case in which visible contractile tumor of pylorus followed an ulcer. *Osler*, i. C-29.

Perforation into thoracic cavity twice as frequent as adhesion to and perforation of anterior abdominal wall. *Pick*, i. C-30.

Occurrence of hæmorrhage settles diagnosis. *G. Rankin*, i. C-30.

Two cases of parotitis as sequel of gastric ulcer. *Hawthorne*, i. C-30.

MEDICAL TREATMENT. Combined use of papain, iron, and cannabis Indica satisfactory in ten cases. Two former to control anæmia and gastric irritability; papain to promote curative process. *G. Rankin*, i. C-30, 31.

Complete cessation of all symptoms in fourteen days in two grave cases by ℞ Sulphate of atropine, 1 grain; distilled water, 2 drachms. M. Sig.: 2 drops three times a day. *Voïnovitch*, i. C-31.

Subnitrate of bismuth, 2½ drachms, suspended in 6½ ounces of warm water, on empty stomach. Recumbent position, with pelvis raised, one-half hour. Diet restricted to milk, stale bread, biscuit, butter, thick soups of rice and sago. *Savelieff*, i. C-31, 32.

If this fail, no food by mouth from six to twelve days; rectal alimentation. Cocaine to diminish hunger; sips of ice-water for thirst. *Pariser*, i. C-32.

Rectal alimentation; chloroform and bismuth mixture for pain; opiate in solution to calm hunger. *Singer*, i. C-32, 33.

Rectal injections of 6½ ounces of milk, a little starch, two eggs, and a little salt. If rectum irritable, few drops of laudanum. *Schlesinger*, i. C-33.

After hæmorrhage rectal feeding should be resorted to for some days; diminishes likelihood of its recurrence. Enema should not consist of more than a half-pint. *Singer*, v. A-173.

SURGICAL TREATMENT. Surgical intervention indicated when relapses occur, proving medical treatment insufficient, and in cases in which gastric or intestinal hæmorrhages cause progressive weakening of general condition. Several days before operation diet composed exclusively of sterilized food, and gastric lavage with sterilized alkaline solution. *Lambotte*, iii. C-1.

Eighty-five per cent. of ulcers cured without intervention; well to wait unless patient experiences really unbearable pain. *Ewald*, iii. C-1.

When diagnosis reasonably certain, laparotomy should be done with the least possible delay. Pain localized at top of shoulder in two cases reported. *Atherton*, iii. C-2.

Successful case of laparotomy for perforating ulcer with subphrenic pneumothorax. *Ewart, Bennett*, iii. C-2.

Case in which perforation no larger than eyelet-hole; extreme collapse followed. *Lundie*, iii. C-2.

Second case successfully by incision, thermic cauterization, and gastro-enterostomy. *Küster*, iii. C-2.

Proposal to excise gastric ulcer not perforated condemned. Küster's operation distinct advance in surgery of stomach. *Barling*, iii. C-2.

Operation with a view to obviating occurrence of perforation condemned. Operation not to be done while patient suffering from first shock of operation. Pain no sure guide to seat of ulcer. Incision in the median line; it can, if necessary, be enlarged transversely. Cleansing of peritoneum most important step, irrigation with sterilized salt solution at 110° to 112° F. preferred. *Gould*, iii. C-2, 3.

Fatal termination of a case due to formation of abscesses, one of which extended

GASTRIC ULCER (continued).
around the liver and opened into left lung. *Horsley*, iii. C-3.

Successful results in a case; operation within three hours. Thorough washing out of peritoneal cavity with boiled water at 110° F. Drainage. Two sets of stitches fixing in folded stomach. Insistence on rectal feeding for a long period. Favorable situation of perforation. *Bourchier, Nicholson*, iii. C-3.

Excision of ulcer gains no support from cases reported by English surgeons; if simple suture sufficient, more severe operation of excision ought to be abandoned. *F. T. Paul*, iii. C-3, 4.

Case followed by recovery, though perforation had occurred; a second succumbing, though perforation had not taken place. *Dunn*, iii. C-4, 5.

In a case in which tissues friable, perforation inclosed in bottom of a fold made on anterior surface of stomach; occlusion assured by double row of Lembert sutures carefully inserted at equal distances. Very satisfactory results. *P. Michaux*, iii. C-5.

In successful case diagnosis based on sudden onset and severity of symptoms, situation of pain, presence of free gas in the peritoneal cavity. Unattended with difficulty after transverse cut through the upper part of left rectus had been added to the original median incision. *A. Bilton Pollard*, iii. C-5.

Case in which, although extensive ulceration discovered, patient never seriously ill and no hæmatemesis or melæna. Presence of another ulcer on posterior wall of stomach. *Steele*, iii. C-5.

If no perforation be present, seat of ulcer sometimes located by presence of circumscribed patch of peritonitis which corresponds to situation of the ulcer. *Keen*, iii. C-5.

Violent cardialgia leading to cachexia menacing life considered an indication for operation. *A. Cahn*, iii. C-6.

Forty-three cases, with ten cures. Ulcer twice on lesser curvature, six times posterior wall, twenty-two times on anterior wall; 86 per cent. in women. Operation should be performed within ten hours after perforation. *Pariser*, iii. C-6.

Case of successful laparotomy for gastric ulcer. *Kirkpatrick, Schuchardt, Walters*, iii. C-6.

Mistake to consider exploratory laparotomy a perfectly innocent operation; often followed by cicatricial adhesions between stomach and abdominal walls. *Ewald*, iii. C-6.

Seven cases of severe dyspepsia and fourteen of gastric ulcer without stenosis completely cured by gastro-enterostomy. *Doyen*, iii. C-6.

GASTRITIS. See STOMACH, DISEASES OF.

GENU RECURVATUM.

Frequency of genu recurvatum and lateral movements in diseases of hip which require prolonged rest in bed and immobilization. *Campenon*, iii. G-56.

Similar conditions in case of equinus, tumor albus of ankle, or paralyses. Due to traction, hyperextension, and muscular atrophy. *Phocas*, iii. G-56.

Case in which knees considerably hyperextended, difficult to make out patellæ; condyles of femur very prominent behind; apex of knee behind instead of in front. *Newbolt*, iii. G-56.

GENU VALGUM.

Modification of MacCormac operation; change of incision from transverse to vertical; incomplete section of bone with production of a green-stick fracture in portion undivided. *Graves*, iii. G-55.

GESTATION. See PREGNANCY, DISORDERS OF.

GLAUCOMA. See EYE, DISEASES OF.

GLOSSITIS. See TONGUE, DISEASES OF.

GLYCOSURIA. See DIABETES and URINALYSIS.

GOITRE.

ETIOLOGY. The chief goitre-forming element is sulphide of iron or iron pyrites in drinking-water, according to Saint-Leger. In the hills of Cumberland and Westmorland, England, where goitre is endemic, iron, copper, and lead found in large quantities. *Stevenson*, iv. E-17.

In certain provinces of Bolivia clay-eating Indians suffer much from goitre. Clay, composed of silica, alumina, lime, magnesia, protoxides of iron, and manganese. *Ashmead*, iv. E-17.

Strong racial predisposition to goitre among Indians of the United States. Localities apparently affect the growth of the tumor as well as its frequency. *Munson*, iv. E-17.

Five cases greatly improved by the mild sea-climate of Abbazia. Favorable action of sea-air previously noted. *Glax*, iv. E-16.

Goitre occurs in all parts of Michigan. Relations such as to make all other causes than the character of drinking-water doubtful. *Dock*, iv. E-17.

Numerous cases of goitre in an excessively chalky district where water-supply obtained from deep wells sunk into the chalk. People who live on the tops of the hills and drink stored rain-water not affected. *H. C. L. Morris*, iv. E-18.

PATHOLOGY. Most frequent fact observed in ten cases presence of fine, granular matter in follicles, in quantity surpassing

that of the homogeneous colloid masses; preliminary stages of latter. Formation of colloid substance a purely degenerative process. *Reinbach*, iv. E-18.

Injections of thyroid extract in a dog, appearance of tumor at level of thyroid gland, and other experiments showing that a tumefaction of the thyroid body may be provoked by injections of thyroid extract. *Ballet*, iv. E-18, 19.

TREATMENT. Potassium iodide dangerous in the treatment of goitre. Fatal case. Goitrous individuals particularly susceptible to iodism. *Ferrand*, iv. E-20.

[I have observed the untoward action of potassium iodide administered internally in goitrous subjects. C. SUMNER WITHERSTINE, Assoc. Ed., iv. E-20.]

Injections of tincture of iodine unjustly neglected; 88 cases, 59 of which cured. Only efficacious in recent parenchymatous goitres. *Brunet*, iv. E-19.

Iodine injections. Out of 183 cases, 111 cured; various forms included in the total. *Holmes*, iv. E-19.

Interstitial injections condemned. In 292 cases operated upon mortality of but 1.36 per cent. Operative myxœdema never observed. *Roux*, iv. E-19.

Only 3 patients lost out of 900 cases operated on during the last twelve years. Only 1 case of surgical myxœdema resulted, due to the fact that the half-gland left behind had become atrophic. *Kocher*, iv. E-20.

Incision in the capsule and exposing parts to the air tried in a case. Goitre rapidly diminished in size and dyspnœa and dysphonia disappeared. Only suitable for cases in which growth is surrounded by venous net-work of considerable size. *Jaboulay*, iv. E-20.

Similar case showing plainly the favorable results to be obtained from this treatment. Easily performed and painless. *Bérard*, iv. E-20.

Sixty cases of benign parenchymatous goitre, without selection, treated with thyroid tabloids, 2 daily to adults, 1 to children. Duration of treatment from three to four weeks, on the average. In young children complete recovery the rule. In adults recovery rare and less common in proportion to age. Complete return of thyroid to normal size not to be expected later than twentieth year. *Burns*, iv. E-21.

Cases treated by desiccated thyroids. Size rapidly reduced, though treatment not maintained for a sufficient time to establish final recovery. Remedy not free from danger if given in unlimited quantities and over too great a length of time. Illustrative case. *E. Fletcher Ingals*, iv. E-21.

[In a case of goitre under my care, in which thyroid tablets were given, the latter had to be discontinued on account of untoward symptoms: accelerated and weak pulse with tendency to syncope, accelerated respiration with dyspnœa, increased diuresis, and progressive emaciation. There was also pronounced anorexia, which disappeared upon the withdrawal of the thyroid extract. C. SUMNER WITHERSTINE, Assoc. Ed., iv. E-21.]

Warning against too sanguine views as to success of thyroid treatment. *Kocher*, iv. E-21, 22.

Three months ample for the exhibition of drugs, when, failing improvement, operation advisable. Pressure on trachea causing dyspnœa and on recurrent causing hoarseness indications of early operation. *John B. Roberts*, iv. E-22.

Electrolysis, according to method of Bergonié, simple and without danger, but tedious and painful. *Thomas*, iv. E-22.

One hundred and twenty cases treated, with gratifying success, by electrolysis. *C. R. Dickson*, v. B-23.

Electricity useful in early stages, current of 100 to 150 milliampères, ten minutes at a time, clay electrode being applied over the goitre and a large wire-gauze electrode between the shoulders. When puncture resorted to, current of 50 milliampères applied for eight or ten minutes. Pure cystic goitres most amenable to treatment. Preferred method: Contents of cyst aspirated, hot solution of chloride of sodium (1 drachm to the ounce) injected, and through trocar current of from 50 to 100 milliampères for ten minutes; salt solution then withdrawn. *Dickson*, iv. E-22.

Objection to the strong currents advised by Dickson. *Rockwell*, iv. E-22.

Case in which suffocation due to goitre treated by tractions of tongue according to Laborde's method; consciousness recovered after fifth traction. *Laborde*, iv. E-22.

Case of parenchymatous goitre in which during injections of ergotine hypodermic needle broke off and remained imbedded. Abscess opened, then thyroidectomy performed; specimen found to contain needle. *Ransohoff*, iv. E-22, 23.

GONORRHŒA. (See also SALPINGITIS and ENDOMETRITIS.)

PATHOLOGY. Gonococcus never present in the normal urethra. Diplococci found in normal urethra can positively be differentiated by Gram stain,—the only crucial test for gonococcus. For ordinary staining 2-per-cent. alcoholic methyl-violet solution. *Heiman*, iii. E-8.

DIAGNOSIS. In more than half of cases slight fever, ranging in the morning around 100° F. and in evening three- to five-tenths of a degree higher. *Trekaki*, iii. E-9.

Gonococcus affected by an alkaline medium. Most favorable temperature for its

GONORRHŒA (continued).

vitality, 96.8° F. Colonies very few in number at 102.2° F., and die in twenty-four hours. Clothing and linen virulent only as long as they have not dried. Dilution in water at any temperature destroys the virulence of gonococci in five hours at the most. Gonorrhœa does not confer a temporary local immunity, as has sometimes been said. A chronic condition does not prevent reinfection. *Finger, Ghon, and Schlagnenhaufed*, ii. J-35.

Development of the gonococcus restricted and virulence destroyed by the use of an alkaline culture-medium. Cultures retain their vitality from four to six weeks if prevented from drying, gonorrhœal pus kept moist found virulent after seventy-one days. Not very susceptible to chemical germicides. *Vaughn and Brooks*, ii. J-35.

Experiments appearing to furnish evidence that the gonococcus is able to diffuse itself in the internal parts of the organism and to give rise to inflammatory conditions. *Bordoni-Uffreduzzi*, ii. J-35.

Diplococcus—which was, with little doubt, the gonococcus—cultivated from 7 cases of acute gonorrhœal urethritis, 8 cases of purulent ophthalmia, and from 4 out of 20 cases of pyosalpinx. Also found in a case of vaginitis in a child aged 9 years. *J. H. Wright*, ii. J-36, 37.

To make a certain diagnosis of the presence of Neisser's gonococcus it must be found in considerable numbers, and these arranged in groups within the leucocytes. Best methods of staining the gonococcus. (See text.) *Turro*, ii. J-37.

TREATMENT.

MALE URETHRA. Preventive against gonorrhœal infection: injection into urethra after coitus of a 2-per-cent. solution of nitrate of silver, with cleansing of glans and prepuce. *Neisser*, iii. E-9.

When seen very early, local application of a 10-per-cent. solution of nitrate of silver through endoscope for two successive days, followed by an astringent injection, may speedily effect a cure. Solutions of resorcin sometimes act favorably by producing exfoliation of the mucous membrane. *Horovitz*, iii. E-9.

Disadvantage in use of nitrate of silver is that it produces, with albumin and sodium chloride, insoluble compounds; hence, does not penetrate sufficiently into tissues to destroy gonococci buried beneath the surface. Argentamin penetrates much deeper. For the anterior urethra: 1 to 5000 or 1 to 4000 solution. For deep urethra: 15 to 30 minims of 1–1000 to 1–500 solution by means of Guyon syringe. *Schäffer*, iii. E-9, 10.

Argentamin: for anterior urethra solutions from 1–4000 to 1–2000. Fifty cases with but one negative result. Secretion increases after first few injections, then rapidly diminishes. Improvement in discharge in five or six days. Treatment about two weeks; applicable to any stage of disease. *Albertazzi*, iii. E-10.

Argentamin superior to nitrate of silver, in solutions of ½ to 1 per cent., for injections into anterior urethra, and 1 to 4 per cent. for posterior urethra. *Aschner*, v. A-31.

First of all suppression or extermination of gonococcus by irrigations of permanganate of potash. To guard against secondary infection glans and prepuce kept disinfected with strong corrosive-sublimate solutions. After gonococcus eliminated, solutions of corrosive sublimate and of nitrate of silver. *Janet*, iii. E-10.

One hundred and twenty-five cases successfully treated by Janet's method. Should not be employed until acute stage has subsided; fluid introduced slowly at first, strength of solutions to be regulated upon reaction on mucous membrane. *Ekelund*, iii. E-10.

Favorable results with Janet's method. *Routier, Valentine*, iii. E-10.

Argonin tried in 260 cases; cannot replace other antigonorrhœal injections in every case. 1.5- to 2-per-cent. solutions rapidly destructive to gonococci; strong solutions devoid of inflammatory or corrosive action; hence adapted to acute gonorrhœa. Lacks astringent properties. *Jadassohn*, iii. E-10, 11.

Irrigation of urethra with warm liquids, using one quart, reservoir at a height of six feet, and patient standing. Irrigation a distinct advance. Permanganate of potassium best remedy for urethral irrigation. *H. M. Christian*, iii. E-11.

Injections of 1 part citric acid in 100 of water, six times a day; disease cured in eight days. *Pellissier*, iii. E-11.

Alkaline injections of advantage. *P. Jaesohn, A. Rose*, iii. E-11.

Intra-urethral injections two to four times a day with solutions of from 1–1000 to 1–2000 of pyoktanin; to retain injected liquid one minute. In sixty-eight patients, painless; in three, intense pains. Stronger solutions stain hands and linen. *Posselt*, v. A-126.

FEMALE URETHRA. Gallobromol. For women a 5-per-cent. solution injected into the bladder and urethra swabbed out with a 20-per-cent. solution. Twenty-per-cent. solution in urethra during first days in men and 40-per-cent. afterward. *J. Quilly, Albert*, v. A-76.

Good results in cases which were refractory to repeated curetting. Fifteen to twenty milligrammes for twenty-five to fifty seconds in para-urethral crypts, and Bartholini's glands. *Barthelemy*, v. B-14.

COMPLICATIONS.

PURPURA. Case complicated, shortly after commencement, by very severe form of infectious purpura. Presence in urethra of gonococcus, cultures from urethral secretions and blood showing white staphylococcus. *Balzer and Laeour*, iii. E-12.

ORCHITIS. Guaiacol, applied to the groin and inner aspect of the thigh, causes diminution of the pain and lowering of temperature. *Tavitian*, v. A-85.

RHEUMATISM. Blood of two cases found to contain colonies of bacteria having characteristics of gonococcus. Inoculation into vagina of a bitch followed by characteristic discharge. *Hewes*, iii. E-11, 12.

GOUT.

PATHOGENESIS. Very frequent, if not constant, association of renal disease with gout. Repeated tests for albumin required, its presence being intermittent. *Grandmaison*, i. J-7.

Great affinity between gout and rheumatism; both due to inefficient elimination. *Tyrrell*, i. J-7.

Renal gout consists in hyperæmia; may be accompanied by hæmaturia. Distinguished from renal calculi by initial chill, bilateral pain, and painless passage of bloody urine. *Mabboux*, i. J-7.

Case in which attack began in parotid gland and next day passed to left knee. *Debout d'Estrées*, i. J-7.

Always combined with primary renal atrophy, this condition being, in all probability, indispensable to development of gouty deposits. *Levison*, i. J-7.

Perverted nutrition in affected part, and development of elliptical, cubical, and polygonal cells with nuclei and granular protoplasm, which, becoming fused, constitute giant-cells. These represent primary lesion, uretic deposits secondary. *Berkart*, i. J-7.

Presence of uric acid at onset of gout very variable. The disease may exist without uretic deposit; latter may exist without gouty symptoms. *Klemperer*, i. J-7.

[Diversity of opinions impose the conclusion that both rheumatism and gout are complicated pathological conditions produced by varied combinations of many factors. N. S. DAVIS, Assoc. Ed., i. J-8.]

TREATMENT. Lithium by cataphoresis, patient being placed in bath containing drug in solution, intensity of current corresponding with that of disease. *Labatut*, i. J-8.

In mild attacks, application to articulations of following ointment: ℞ Sodium salicylate, 75 grains; lanolin, 1½ ounces. In severe attacks, the salicylate and colchicum until pain and swelling abate. In chronic cases, regulation of diet, alkaline baths, moderate exercise, and bicarbonate of sodium, carbonate and benzoate of lithium, or piperazine, 15 grains of the latter per day. *Morain*, i. J-8.

Piperazine as valuable in gout as in rheumatism. *Mapother*, i. J-8.

Hot sea-baths—100° to 104° F.—from thirty to forty-five minutes. *Gérard*, v. A-177.

Currents of high tension and of high frequency. *D'Arsonval*, v. B-4, 5.

Glycerophosphates of lime, iron, sodium, magnesium, and potassium, either by subcutaneous injection or by the mouth. (See GLYCEROPHOSPHATES, section A, this volume.) *Albert Robin*, v. A-79.

Strontium salicylate—10 or 15 grains—acts very decidedly without producing disturbance of stomach. May be given in capsules. *H. C. Wood*, v. A-148, 149.

GRAVES'S DISEASE.

See EXOPHTHALMIC GOITRE.

GRIP.

See INFLUENZA.

HABITS.

(See also ALCOHOLISM, MORPHINOMANIA.)

CAFFEISM. Should be recognized to avoid errors in diagnosis. Likely to be confounded with gastric and nervous disorders of alcoholism. *Gilles de la Tourette*, ii. E-24.

TOBACCOISM. In angina pectoris of immoderate tobacco-users: ℞ 1-per-cent. alcoholic solution of trinitrine, 15 minims; fluid extract cactus grandifl., 2 drachms; Hoffmann's anodyne, 5 drachms and 15 minims. M. Sig.: Thirty drops three times daily in a little water. *Crook*, ii. E-24, 25.

COAL-TAR DERIVATIVES, ADDICTION. Incurable nervous deterioration. Caused by sulphonal in 20-grain doses six times a day. Acetanilid, 1 drachm, 20 grains, and 32 grains maximum daily doses in three cases. Depreciation of all normal functions. Exaggerated perspiration and sometimes night-sweats; marked cyanosis in two cases. Withdrawal caused depression, insomnia, vomiting, and diarrhœa. Strychnia hypodermically, with morphia when necessary; chloral per rectum at night. *J. Suttle Davis*, ii. E-25, 26.

COCAINE. [Case due to cocaine inhalation. Had been prescribed for persistent asthma. Faculties heightened; but slight symptoms of brain degradation, with will-paresis. N. KERR, Assoc. Ed., ii. E-26.]

HÆMATEMESIS.

Dark coloration of stomach-contents not always indicative of presence of blood. Spectroscopical, chemical, and microscopical examination necessary. *Ewald, Kuttner*, i. C-48, 49.

Case of profuse hæmorrhage due to slight

HÆMATEMESIS (continued).
ulcerations of mucous membrane, but no ulcer present. *Ferrand*, i. C-49.

HÆMATOMYELIA; HÆMATORRHACHIS.

PATHOLOGY. Case in which a fall followed by paralysis of both legs, with anæsthesia up to level of nipples, loss of patellar reflexes, and retention of urine. Extra-dural hæmorrhage of third or fifth dorsal vertebra, which compressed spinal cord. An operation would have saved the patient. *Lambert*, ii. B-21.

In hæmorrhages of the spinal cord, dissociation of the sensibility of the skin present, as in syringomyelia. *Lad*, ii. B-21.

[This symptom referable to the same localization of disease in the posterior horn; the hæmorrhages and the cavities of syringomyelia are mostly met with at this point. H. Obersteiner, Assoc. Ed., ii. B-21.]

Case of hæmatomyelia consequent upon the lifting of heavy loads. *Marinesco and Van der Stricht*, ii. B-21.

HÆMATOPORPHYRINURIA.

Case following administration of sulphonal. Hæmatoporphyrinuria, normal or pathological; connected with introduction of hæmoglobin with food. When consequent on sulphonal poisoning, lead colic, etc., due to gastro-intestinal hæmorrhages provoked by action of these poisons. *Oswald*, i. E-45.

HÆMATURIA.

Case after delivery with pains in lumbar region and hypochondrium; increase without disturbing general health. Renal origin established, exploratory operation performed, but nothing abnormal found. After operation urine perfectly normal. Cases considered as renal hæmaturia. *Broca*, i. E-45.

HÆMOGLOBINURIA.

PATHOLOGY. Case in which attacks followed action of cold; sometimes accompanied by fever. *Hayem*, i. E-42.

Case in which urine, on certain occasions, contained blood-pigment, but in which careful examination showed no blood. Patient could bring on attack at will by exposing himself to cold. *Bishop*, i. E-43.

Case of paroxysmal hæmoglobinuria due to cold, occurring only in winter. When free from hæmoglobinuria patient troubled by cerebral symptoms. *L. Faugères Bishop*, i. E-43.

Case of paroxysmal hæmoglobinuria from cold, showing that a central nervous disturbance is required, in addition to exposure, for production of typical attack. *Chauffard*, i. E-43.

Case of essential paroxysmal hæmoglobinuria in child who showed undoubted signs of inherited syphilis. Potassium iodide and mercurial inunctions led to disappearance of the hæmoglobinuria. *Courtois-Suffit*, i. E-43.

Three cases evidently due to hereditary syphilis. *Comby*, i. E-43.

Experiments demonstrating dissolution of hæmoglobin during and after paroxysmal attack. *Armand, Siredey and Garnier*, i. E-44.

Relation of continuous form with Bright's disease, recalling pre-nephritic and post-nephritic varieties of Robin. *Bécart*, i. E-44.

Class of cases found in subjects of chronic malaria, in which administration of quinine followed by symptoms resembling paroxysmal hæmoglobinuria. In such cases quinine is contra-indicated; salicin and Fowler's solution or alcoholic extract of eucalyptus to be substituted. *Tomaselli*, i. E-44.

Case due to quinine and followed by acute albuminous nephritis. *Kanellis*, i. E-44.

HÆMOPHILIA.

PATHOLOGY. Thirty-four cases observed in fifty families in which the disease was transmitted by women not themselves affected. *Kolster*, i. K-15.

Three cases in brothers and no traceable hereditary tendency. *Daland*, i. K-15.

Heredity generally demonstrable; most hereditary of all diseases. *Henry*, i. K-15, 16.

Cause of affection in blood-vessels rather than in blood proper. Wasting of tunic or absence of the middle layer of arterioles. *Henry*, i. K-16.

Not a mysterious condition of the blood, but an important symptom pointing to grave disorder of arterial or venous system. Hæmorrhages rarely take place from arterial system. *Kuhlman*, i. K-16.

Pregnancy and labor not as dangerous for hæmophilic women as generally supposed. In 130 cases only 3 deaths and 16 abortions. *Kolster*, i. K-17.

Extraction of teeth a dangerous procedure. *White, Clarke, O'Neill*, i. K-17.

Appearance some days after. Considerable or repeated hæmorrhage of nucleated red corpuscles in the blood. *Zenoni*, i. K-17.

HÆMOPTYSIS. See Tuberculosis of the Lungs.

HÆMORRHAGE.

TREATMENT. Apparently hopeless case mastered with liquor of calcium chloride 15 minims every two hours. *Barrett*, i. K-17, 18.

TRANSFUSION. In anæmia from disease of blood-making organs, hæmorrhage from internal organs, in typhoid gastric ulcers, etc. *Ziemssen*, i. K-18.

Case of immediately successful transfusion

in case of pernicious anæmia. *Ewald*, i. K-18, 19.

INFUSION OF SALINE SOLUTION. Indicated in acute anæmia from sudden and profuse hæmorrhage. *Ziemssen*, i. K-18.

Cases illustrating value of saline solution. *Raw*, *Glenn*, i. K-19.

Case of suppression of urine after operation successfully treated by saline-solution infusion. *McBurney*, i. K-19.

Saline-solution infusion valuable in diabetic coma. *Howship Dickinson*, i. K-19.

HÆMORRHAGIC OSTEOPATHY.

BARLOW'S DISEASE (HÆMORRHAGIC OSTEOPATHY). Children affected almost exclusively. Waxy skin with purple spots occasionally; œdema of tarsal joints, bridge of nose, and scalp. Saturation of muscular system with sero-gelatinous substance. Separation of periosteum from flat bones by blood-coagulum; bone thickened and upper surface somewhat rough. Marrow hyperæmic, rich in lymph-cells and leucocytes, generally of rachitic origin. *Lunz*, i. K-28.

HÆMORRHOIDS.

External classified as: redundant, superabundance of anal integument; hyperplastic, pendulous projection with abrasion, fissure, or ulceration; hypertrophic, thickened folds associated with eczematous inflammation. *Otis*, iii. D-20, 21.

TREATMENT.

WHITEHEAD'S OPERATION. Whitehead's operation indicated where entire, or nearly entire, circumference of pile-bearing portion of rectum is involved. *Borts*, iii. D-21, 22.

Whitehead's operation, as now modified, equally as practical and more scientific than any other method. *Gailey*, iii. D-22.

Incontinence of flatus and fæces, paralysis of the sphincter, retraction of the edges of wound forming tubular ulcer with stricture, and irritable and painful anus, shown in statistics of 200 cases to be main sequelæ to be feared in Whitehead's operation. *Andrews*, iii. D-22, 23.

Too many complications to make it popular or safe. *Andrews*, iii. D-23.

If names of operators were mentioned, most of disastrous results would be found to be the work of incompetent men. Personal results excellent. *Marcy*, iii. D-23.

To obviate secondary contraction: posterior incision, which, filling in by granulation, allows for contraction which follows. *Henderson*, iii. D-23, 24.

Whitehead method not all that was promised for it. Should be employed only in selected cases. *Trowbridge*, iii. D-24.

CLAMP AND CAUTERY. In clamp-and-cautery method none of complications encountered after the Whitehead operation. *Trowbridge*, iii. D-24.

In 267 cases treated during five years clamp-and-cautery method preferred to all others. *Kelsey*, iii. D-24.

Clamp-and-cautery method is preferred. Often combined with the ligature, using clamp for larger masses. In patients weakened by loss of blood, ligature only. *Haward*, *Colston*, iii. D-25.

Decided advantage in favor of clamp and cautery from the fact that patients suffer very little in comparison to ligation. *Davis*, iii. D-25.

New clamp, blades of which always remain perfectly parallel, insuring equal pressure at all points. *Gant*, iii. D-25.

Curved forceps for the removal of hæmorrhoids and other soft growths. *Guyon*, iii. D-26.

MISCELLANEOUS OPERATIVE METHODS. In the first stage, that of intermittent attacks, gentle purgatives, very warm water, plugs of cotton steeped in 1-per-cent. solution of cocaine. Second stage, piles procident, veins very painful, forcible dilatation after local anæsthesia with successive pledgets of 1-per-cent. sol. of cocaine, and injection of same solution into perineum one-half inch from anus. In third stage, veins turgescent, removal with bistoury without dissection of mucous membrane or attention to hæmorrhage. *Réclus*, iii. D-26, 27.

New operation for hæmorrhoids and prolapsed rectum. Sphincter dilated under anæsthesia. Long, semicircular needle is passed subcutaneously from muco-cutaneous juncture over upper border of hæmorrhoidal area and down and out at point of entrance. Needle removed, silk ligature drawn tight about venous plexus, ends being left hanging. *Ricketts*, iii. D-27.

Under anæsthesia speculum covered with glycerin introduced. By separating valves progressively the rectum is distended to maximum for two minutes. Irrigation of intestine with 7 to 1000 salt solution, insufflation of iodoform-powder. One hundred and five cases. Scarcely any hæmorrhage; no pain, fever, or other complications. *Grekoff*, iii. C-27, 28.

Typical manifestations of severe tetanus, ending in death, on ninth day after forced dilatation, in young, healthy man. *Gotard*, iii. D-28.

Dilatation of the anus followed by injections of 2 drops of a solution of glycerin and carbolic acid, 50 to 80 per cent., in the tumors. *Roux*, iii. D-28.

Injection of iodoform dissolved in ether; eight cases; favorable results. *Beck*, iii. D-28, 29.

Daily application of 2-per-cent. solution of nitrate of silver, not painful, and anal fissures, if any, become cicatrized. Eight to fifteen applications sufficient. *Schmey*, iii. D-29.

HÆMORRHOIDS (continued).

Pain and irritation of inflamed hæmorrhoids: After each stool, and several times daily, washing with 6 ounces of a 1 to 10,000 solution of bichloride and a tampon of cotton impregnated with ℞ Lanolin, 1½ ounces; vaselin, 5 drachms; distilled water, 1 ounce. M. Sig.: For external use. *Illinsky*, iii. D-29.

Where inflamed or strangulated, non-surgical measures safest. Appropriate diet and laxatives. Warm-water ablutions, plain vaselin locally. Large injections of cold water, plain or containing boric acid or antipyrin to abate inflammation. Astringent injections harmful. If gangrene threatened, warm applications. In addition, soothing application or this ointment: ℞ Cocaine hydrochloride, 7 grains; aqueous extract of opium, 20 grains; extract of belladonna, 12 grains; populus-ointment, 1 ounce. M. If deemed necessary, at bedtime the following suppository may be used: ℞ Aqueous extract of opium, 1 grain; iodoform, 3 grains. M. For one suppository. *Davis*, iii. D-30.

Ointment containing 10 per cent. of cutol. *Koppel*, v. A-10.

HALLUX VALGUS—BUNION.

Discrepancy of opinion as to etiology. König lays stress upon conditions associated with gouty diathesis. Shape of shoe not matter of such great importance as supposed. Decapitation of first metatarsal bone by oblique incision, so as to throw axis of great toe inward, obtaining false joint with slight degree of motion. *Warbasse*, iii. G-68, 69.

Incision; bursa dissected out. Joint then opened on inner side by incision from head of metatarsal to one-third length of first phalanx of great toe down to bone. Base of first phalanx then exposed and enough removed to prevent its crowding upon articular surface of metatarsal. *Riedel*, *Wackerhagen*, iii. G-69.

Incision made inside; between great and second toe, splitting parts and exposing joint on side adjacent to second metatarsal, opening joint and throwing phalanges outward. Head of metatarsal exposed, sliced off, and the parts replaced. No cicatrix on outside of foot. *Fowler*, *Pilcher*, iii. G-69.

Best method extirpation of sesamoid bone and transplantation of flexor longus of great toe upon tendon of extensor muscle of same toe. *Ullmann*, iii. G-69.

HARELIP AND CLEFT PALATE.

ETIOLOGY. Case in which child's father had been born with a medium scar on the upper lip; the latter's two brothers both had harelips and cleft palates, and their father presented the same malformations. *Weismann*, iii. K-13.

Etiological connection between amniotic adhesions and bands and harelip may produce the cleft in various ways. Adhesion between fœtus and the amnion at the spot where parts should unite; adhesion on the cheek acting by traction, etc. *König*, iii. K-13, 14.

TREATMENT. Best time for operating, in the absence of some special indication, is about the sixth week. *Heath*, iii. K-14.

Case, in which cleft was so extensive that usual operations seemed to promise little, corrected by using the hypertrophied inferior turbinated bones with gratifying success. *Kraske*, iii. K-14, 15.

Three cases of harelip with alveolar and palatine fissure. In these cases operation is made easier and restoration is more perfect by preliminary osteotomy of palatine vault and nasal septum. *Le Dentu*, iii. K-15.

Results of operation on sixty cases of harelip and twenty-four of cleft palate. Of the former, death only in young infants who were admitted to hospital without their mothers. Mortality from bronchopneumonia and infantile diarrhœa. All those accompanied by their mother or wet-nurse recovered with primary union. *Broca*, iii. K-11, 12.

Permanent closure of the fissure by uniting the tissue along the border of the cleft is not successful unless there is provided thereby a palate which, in conjunction with the pharyngeal muscles, will enable the patient to forcibly expel all the air, which is the vehicle of the voice, through the mouth. *Case*, iii. K-12, 13.

Metallic splint made by Martin to facilitate operation for harelip. *Allex*, iii. K-13.

Case of recurrent and severe hæmorrhage after operation for cleft palate, child having got its hand into its mouth and picked at the silver sutures. *D'Arcy Power*, iii. K-15.

[To prevent children from disturbing dressing Littlewood has recommended to fix both elbows in the extended position with a few turns of plaster-of-Paris bandage. ED.]

HAY FEVER.

PATHOGENESIS. Hay fever in five members of the same family. Mimicry must play an important part in originating the autosuggestion in such cases; a large number possibly developed in the same way. Attacks under this condition would come on on a certain date because of apprehension or expectancy. *Prince*, iv. D-32.

[Initial attack and two or three succeeding ones usually considered by patient as severe "colds"; hence, autosuggestion cannot play the slightest part in the early history. Later on, however, when the identity of the disease is fully established, dread can but exercise a certain influence in the elaboration of an attack. Again,

cases sent to hay-fever resorts not all benefited, notwithstanding absolute immunity expected; while others during a voyage miss an attack, notwithstanding intense apprehension, merely because they happen to be in a district in which the irritants to which the patients are susceptible are absent. C. E. SAJOUS, Ed., iv. D-32, 33.]

Majority of sufferers present evidences of lowered nutrition and neurasthenia. Vasomotor disturbances of mucosa lead to paroxysmal outbreaks which can appear independently of any hypertrophic change. There ordinarily exists, however, an hyperexcitability of the nasal lining. Preponderating irritating elements are odors. Specific action of pollen not admitted. Periodical form probably due to fact that at certain seasons there is a certain conjunction of odors, light, and heat. *Joal*, iv. D-33.

[Hay fever not a disease in the generally accepted sense of the word; vasomotor system but one of the more important systems brought into play. In its active form it is but the result of a sudden cessation of the inhibitory functions of the nerve-centres presiding over the physiological processes of the upper respiratory tract, which, under the influence of hereditary or acquired disease of an adynamic type, having themselves become adynamic, are able to carry on their functions under ordinary circumstances; but, when demand imposed upon them for inordinate functional activity, they lose all power of control and give rise to the symptoms observed after section of the sphenopalatine ganglion, or of the cervical sympathetic, as shown by Claude Bernard, most marked of which symptoms is hyperæsthesia. Concurring with and as a result of this central adynamia, there exists a liability of the nasal mucous membrane to become unduly influenced by certain irritants, physical or chemical, or a central susceptibility to the emanations of drugs, plants, animals, or other elements. C. E. SAJOUS, Ed., iv. D-33, 34.]

Paroxysmal sneezing identical with hay fever, hay asthma, and rose cold, only different in the active irritant. Cases suffering from hay fever for a long time very apt to merge into this condition. *Scott Renner*, iv. D-34.

TREATMENT. Hay fever due to neurasthenia. Irritability of nasal mucous membrane of secondary etiological importance. ℞ Liq. potass. arsenitis, ext. nucis vomicæ fluidi, ext. cinchonæ fluidi (detannated), of each, 2 drachms; alcoholis, 3 ounces; syr. aurantii, q. s. ad 16 ounces. M. Sig.: 1 or 3 drachms t.i.d., with or after meals. To be taken at least six weeks before annual appearance of attack. *A. L. Hall*, iv. D-34.

To cause cessation of intense dyspnœa, patient's hands to be placed in hot water and hot beverages. Local application, by means of the douche, of Marchand's peroxide of hydrogen, 1 part to 2 of warm water. For asthma proper: ℞ Iodide of ammonia, 1 drachm; fl. ext. grindelia robusta, 4 drachms; fl. ext. yerba santa, 4 drachms; aqua, q. s. ad 2 ounces. Teaspoonful four or five times a day the first week; second week, every three hours, adding ℞ Terpin hydrate, 1 drachm; for twelve capsules, two capsules every two to four hours. *Rixa*, iv. D-34, 35.

Importance of removing any posterior hypertrophy which may be present. *Weaver*, iv. D-35.

Remarkable effects obtained through exercise on the bicycle even during attacks. *Anonymous*, iv. D-35.

HEART, DISEASES OF.

DILATATION AND HYPERTROPHY.

PATHOLOGY. Clinicians consider it as a compensatory process, while pathologists of modern school look upon it as an indication of disease. *J. Whittaker*, i. B-1.

Hypertrophy never primary in a hard-working heart, whether increased labor be due to resistance from within, from without, or to nervous stimulation and augmented action. Primary dilatation a compensatory element. Residual blood dilates cavities, diminishes extent to which each fibre is called upon to contract. *J. G. Adami*, i. B-1, 2.

Principal causes, other than disease of the valves, myocardium, and pericardium: 1. Organic changes in arterial system. 2. Overfilling of circulation. 3. Foreign substances in the blood. 4. Causes that act on general cardiac nervous system. Arteriosclerosis the most important factor. *J. Stewart*, i. B-2.

Results of examinations of 139 vessels of all sizes. In smaller arteries thickening affecting both muscular and fibrous coats. Thickening greater in small vessels than in the larger. With chronic granular kidney hypertrophy of the muscle and of the fibrous tissue of whole arterial system connected with left side of the heart and of muscles of the heart. *W. Howship Dickinson*, i. B-2, 3.

Connection between kidney disease and cardiac hypertrophy attributed to primary toxicity of the blood. *De Dominicis*, i. B-3.

Causes in 360 cases: Arterio-sclerosis in 59 per cent.; chronic nephritis in 13.4 per cent.; valvular lesions in 12.4 per cent.; adhesions in the pericardium in 7.6 per cent.; excessive muscular work in 3.8 per cent.; tumors in 1.9 per cent.; aneurisms in 0.95 per cent. *Lafleur*, i. B-4.

Ingestion of a pint of water causes blood-pressure to return to normal in one hour,

HEART, DISEASES OF (continued).

after ingestion of pint of wine or beer blood-pressure becomes normal only after two hours. Great beer-drinkers nearly all suffer in a few years from dilatation of the heart. *Bollinger*, i. B-4.

Defective development of thorax important in the etiology of pseudohypertrophies of adolescence. Thorax elongated and constricted; heart forced downward, apex sometimes as low as fifth intercostal space. *Huchard*, i. B-4.

Rôle ascribed by some authorities to ordinary growth in production of organic cardiac conditions, notably hypertrophy, cannot be demonstrated. *Potain and Vaques*, i. B-4, 5.

EFFECTS OF EXAGGERATED BICYCLING. Cycling tells primarily and distinctively on the heart and circulation. *B. Ward Richardson*, i. B-5.

In ten runners, who had just reached the goal, apex seemed to have deviated to the left from two to three centimetres. In one, affected with aortic insufficiency, apex lowered and notable increase of præcordial dullness, evidently connected with dilatation of right cavities. Among all the men arterial pressure lowered. Mechanism seems to relate to overtaxing, general fatigue, and to secreted toxic products. *Teissier*, i. B-5, 6.

Segmentary dissociation of the myocardium in a fatal case of strained heart. Fibre seemed to have its continuity broken at the level of the intercellular cement. *Félix Ramond*, i. B-6.

Pulse after violent use of bicycle in some cases reached 250; after ten hours' rest, heart still accelerated,—a sign of beginning insufficiency. *Mendelssohn*, i. B-6.

Several subjects in which death had occurred from heart-strain. Marked dilatation of coronary veins and their subepicardial branches. Microscopically, dilatation seen to extend to capillaries between individual muscle-bundles. Intermuscular connective tissue granular and cloudy. Muscle-cells showed vacuolar degeneration. Venous congestion and œdema of muscular bundles and connective tissue. *Banti*, i. B-6, 7.

DIAGNOSIS. Excessive work thrown upon normal right ventricle presents fairly destinctive symptom,—namely, pain, localized in the region of the second and third left costal cartilages; usually dull, but may be acute; sense of tightness in præcordia. In the adolescent type of dilatation increase in size upward and to the left, giving increased area of relative cardiac dullness in third, second, and sometimes first left interspaces. [See VALVULAR DISORDERS.] *T. Stacey Wilson*, i. B-7, 8.

TREATMENT. Treatment of cardiac hypertrophy much the same in all cases, regardless of cause. *F. W. Campbell*, i. B-8.

Aconite, 1 drop every two hours until its effects are manifest. *Walsh and Page*, i. B-8.

Digitalis deprecated, though recommended by Walsh and Osler. *Page*, i. B-8.

With signs of dilatation as indicated by gallop, rhythm, urgent dyspnœa, and slight lividity; venesection in many cases the only means by which life of the patient may be saved; 20 to 30 ounces of blood to be abstracted without delay. *Osler*, i. B-8.

When compensation is established, baths ranging from 90° to 93° F. well borne and exercise peculiarly beneficial and invigorating influence upon heart. *Strumpell*, i. B-8.

Pellets of cactina, $\frac{1}{100}$ grain each, one being given every two hours during the day, especially effective in weak and dilated heart. Kola cordial as a cardiac tonic. *Campbell*, i. B-8.

Attention not sufficiently called to necessity of recognizing and treating the earliest condition in which there is a pure hypertrophy of the heart-muscle. Two classes: 1. Overaction of the heart. 2. Undue contraction of the arterioles. Aconite lessens force and frequency; a solution of either sodium nitrite or nitroglycerin acts directly upon small arterial vessels. Aconite, eliminated slowly, should be administered about every six hours. Nitrites eliminated rapidly; dose should be repeated at least every three hours. *Blackader*, i. B-8, 9.

In dilatation and hypertrophy resulting from overexertion, in marked cases, rest in bed important factor. Stimulants to be avoided. Digitalis useful in many cases, but rejected by some stomachs. In such cases rectal injections of the drug. Calomel if other cardiac remedies fail. Narcotics and hypnotics to be used with great care, but sometimes necessary, as sleep rests the heart. Ice-bags of doubtful value. Blood-letting to prevent stasis, especially for relief of cyanosis and distressing dyspnœa. Use of aërated beverages to be avoided. *Herman Rieder*, i. B-9.

GASTRIC CARDIOPATHIES. Disturbances may be simple dilatation of the right heart with incompetency of the tricuspid; when developed to maximum degree, veritable acute asystole may occur. Chronic cardiopathy has never been noticed as a result. *Hayem*, i. B-37.

Due to a reflex action originating in nondigestion of food. *Potain*, i. B-37.

Another theory, that of mechanical distension of the stomach, may explain extracardiac bruits and asystole. *Hayem*, i. B-37.

PERFORATION AND RUPTURE OF THE HEART. Among 1000 medico-legal autopsies only 1 case of rupture reported, resulting from a fall. *Nebolionboff*, i. B-29.

Case of spontaneous perforation of the heart. Hole the size of a knitting-needle found in the wall of the left ventricle, sit-

uated about one and one-half inches from the apex. *J. A. Tanner*, i. B-29.

Case showing a thinned area on the posterior wall of the left side of the heart with a fissure eight millimetres long, through which about nine and one-half ounces of blood had poured into the pericardium. *Szegaté*, i. B-30, 31.

Case in which during life heart-sounds were faint, but there were no added sounds. Attack began with a severe pain in the præcordium followed by hemiplegia. Pericardium found filled with blood-clot; laceration about one and one-half inches in length in the lateral wall of the left ventricle. Fatty degeneration; no valvular lesion. *Dudley W. Collins*, i. B-30.

Rupture of the heart in a boy 9½ months old. Rupture one-third inch in right ventricle, started about the middle of the ventricle. *Edridge Green*, i. B-30.

Case in a woman, 72 years old, suffering from chronic mania. *A. E. Patterson*, i. B-30.

Case due to atrophy of the left ventricular wall through atheromatous degeneration. *H. U. Williams*, i. B-30.

Case of spontaneous rupture of a microscopically healthy heart following announcement of bad news. Seat of the rupture posterior surface of left ventricle. *Vincent Griffon*, i. B-30, 31.

Four cases showing that infectious maladies, in producing cardiac and vascular changes, bear important influence in pathogenesis of rupture of the heart. *Chiperovitch*, i. B-31.

SENILE HEART.

PATHOLOGY. Changes generally those of chronic myocarditis; real extent and location often escape recognition. *R. H. Babcock*, i. B-38.

Anatomical changes: Connective-tissue hypergenesis wherever this tissue exists normally; preservation of relation of various constituent elements of the artery; absence of all traces of inflammation capable of accounting for this hypergenesis. *Boy-Teissier*, i. B-38.

TREATMENT. For angina due to senile heart, nitroglycerin of great benefit, $\frac{1}{100}$-grain tablet three or four times a day quickly relieves pain. In some cases cholagogues. For severe dyspnœa, fluid extract of quebracho, 15 to 30 drops every three or four hours, in water. *A. S. Pattee*, i. B-38.

Paroxysmal dyspnœa due to disproportionate weakness of left ventricle promptly relieved by hypodermic injection of morphine $\frac{1}{8}$ grain and atropine $\frac{1}{200}$ grain. *R. H. Babcock*, i. B-38.

SYPHILIS OF THE HEART. Different forms of syphilitic disease of the heart: (1) gummata; (2) fibroid induration; (3) amyloid degeneration; (4) endarteritis obliterans, often inducing infarctions. When symptoms of cardiac failure occur during prime of life for which no cause can be ascertained, in a patient having a syphilitic history, these symptoms should always suggest syphilis. *Loomis*, i. B-31, 32.

Cases of sudden death from cardiac syphilis. A large number of recorded cases. *Sir Dyce Duckworth and Sidney Phillips*, i. B-32.

Out of nine personal cases six died suddenly. If symptoms looked for they can generally be discovered. *Hale White*, i. B-32, 33.

DIAGNOSIS. Case of cardiac syphilis, permanent slow pulse (30 to 35 beats); syphilitic lesion found at autopsy. In all previous cases personally observed pulse weak, rapid, and irregular, but not permanently slow. *Rendu*, i. B-33.

Pathognomonic signs: A persistent arhythmia, either alone or accompanied by tachycardia, respiratory troubles coming and going; resistance to ordinary methods of treatment, and history of syphilis. Through syphilitic stenosis of coronary artery, symptoms of angina pectoris may be caused. Exceptionally murmurs. *Semmola*, i. B-33.

PROGNOSIS. The course of syphilis of the heart extremely slow and insidious. Judging from reported cases, prognosis extremely bad, death coming suddenly and often in the midst of apparent health. In sixty-three cases sudden death occurred in one-third. *Mracek*, i. B-33.

Sudden death observed in 50 per cent. of cases. Death comes after a heavy meal or from drinking or straining. Patients are usually found dead in bed. *Jullien and Mauriac*, i. B-33.

TREATMENT. When disease recognized early and properly treated, prognosis fairly good. *Mracek*, i. B-33.

If symptom is simple arhythmia without further objective appearances, specific treatment promises well. Frequently, however, patients come too late. *Buchwald and Semmola*, i. B-33.

Treatment must be thorough and long continued. Every advantage must be taken of air, surroundings, food, and hygienic regulations. Mixed treatment serves the best purpose. Iodide of potassium in large doses of 90 to 120 grains a day; mercury in inunctions. Treatment should have frequent intermissions. *Mracek*, i. B-33, 34.

TUMORS OF THE HEART.

POLYPOID GROWTHS. Obstruction to the circulation caused by a pedunculated myxoma in the auricle, which hindered closure of the mitral valve. *Pawlowski*, i. B-34.

Case in a woman who had had successively gangrene of both legs, but in whom no abnormal cardiac symptom was observed during life. At the autopsy a thrombus,

HEART, DISEASES OF (continued).

solidly attached to the cardiac wall by a pedicle, found. *Krumm*, i. B-34.

MALIGNANT GROWTHS. Sarcomata of the heart found at autopsy of a man whose history showed dyspnœa, palpitations and vertigo, emaciation, but no anæmia. Moderate roughening of the sounds at apex. Pain in abdomen, chest, and left shoulder, and, later on, in epigastrium; finally, grating friction-sounds over apex. *J. S. Thacher*, i. B-34.

Case of secondary squamous epithelioma; no cardiac symptoms during life. *Wild*, i. B-35.

Case of cysticercus racemosus of the cardiac muscle. *Firket*, i. B-35.

[That special form of the *Cysticercus cellulosæ* called *C. racemosus* has seldom, if ever before, been found outside of the great nervous centres; but the ordinary cysticercus occurs, of course, in the skin, the brain, the eyes, and the muscles. Echinococcic cysts have been found in the heart and blood-vessels in 61 cases out of a total of 1862. Whittier and Vickery, Assoc. Eds., i. B-35.]

VALVULAR DISORDERS. Study of compensation in 130 cases of valvular diseases, 46 of which died while under observation. In 66 per cent. of fatal cases insufficiency of the aortic valves observed, and present in only 33 per cent. of those recovering. Insufficiency of the bicuspid valve present in only 15 per cent. of those who died. Insufficiency of aortic valves can exist for years without causing any symptom. In insufficiency of the bicuspid valve symptoms usually extend over many years. *E. Weisz*, i. B-17, 18.

In some cases in which clinical examination has indicated valvular insufficiency, which are not demonstrable at autopsy, slight thickening may be found at level of valves, corresponding with spots struck by blood-current in the ventricle. *Zahn*, i. B-18.

MITRAL STENOSIS. Region in which murmur of mitral stenosis is ordinarily heard generally described as limited sharply to mitral area or immediate vicinity; not at all infrequently heard much beyond the ordinarily prescribed limits. *J. P. Crozer Griffith*, i. B-18 to 20.

Analysis of sixty cases of mitral stenosis; seventeen post-mortem records. Apical presystolic murmurs present in just over half the cases, diastolic in four-fifths; latter more frequently audible both at apex and above than at apex alone. In three-fourths apical systolic present; often not conducted round to the back; in 83 per cent. a systolic murmur in pulmonary area, in 68 per cent. in tricuspid region. Great frequency of diastolic murmurs in mitral stenosis. *Stecll*, i. B-20, 21.

Two cases presenting history of well-marked presystolic murmur associated with diametrically opposite conditions of extreme stenosis and dilatation of the mitral orifice. Therefore presystolic murmur not dependent upon absolute size of the orifice. *Adami*, i. B-21.

Case of pyæmia suggesting possible cause for presystolic murmur without stenosis of mitral valve. Heart being enlarged to nearly twice its normal size, quantity of blood contained in chambers correspondingly increased. Excessive amount of blood seeking passage through normal passage makes a relative stenosis of the orifice; hence presystolic murmur when amount of blood extreme. *Hamilton and Martin*, i. B-21, 22.

Above suggestions offered as to cause of presystolic murmur very valuable. *Adami*, i. B-22.

Mitral hemisystole—that is, double right ventricular pulsation, in opposition to single left ventricular pulsation—does not exist in mitral insufficiency; intermittent pulse due to abortive contraction. *François-Franck*, i. B-22.

Explanation of presystolic murmur; thickening of tendinous cords and dilatation of the ventricle may cause the two cusps of mitral valve to be abnormally approximated and thus induce a functional stenosis. Forty-six recorded cases of presystolic apex-murmur without mitral stenosis. *Phear*, i. B-22.

So-called presystolic murmur in reality systolic, sphygmographic tracings showing that one-tenth of a second elapses between systole and occurrence of the murmur. Murmur follows impulse of the heart. *Bernheim*, i. B-22, 23.

Double sound simulating a repetition of the second sound in mitral stenosis not due to non-synchronous closure of the valves of the pulmonary artery and the aorta, respectively; the second element of the double sound has its origin in the left ventricle. *A. E. Sansom*, i. B-23.

In mitral stenosis the ventricle practically equal to its work. Efficiency probably retained almost to the last. That which fails is the material for work,—*i.e.*, the blood. With increasing mitral stenosis ventricular supply is gradually lessened,—ventricle contracts on less and less blood. Overloaded right ventricle falls into the hurry of weakness. Effect of this hurry on left side of heart disastrous. *Ewart*, i. B-23, 24.

In hysterical subjects existence of a temporary curable mitral stenosis sometimes noticeable. Due to a contraction of tensor muscles of mitral valve. *Picot*, i. B-24.

While physical symptoms of mitral stenosis in arterio-sclerosis are very slight, functional disturbances are often extremely pronounced. Mechanical dyspnœa is added

to the toxic of ptomainic dyspnœa of renal sclerosis. Patients may die suddenly of angina pectoris, when sclerosis has invaded coronaries. *Huchard*, i. B-24.

AORTIC INSUFFICIENCY. The systolic bruit of aortic insufficiency is always located at the base of the heart and extends into the carotids. The diastolic bruit most frequently present at the base, exceptionally, it is not heard at the base, but nearer the apex, toward the fourth intercostal space. *Bernheim*, i. B-24, 25.

Case of aortic regurgitation in which diastolic murmur could be heard not only with the ear against the chest, but two inches from the man, and over his entire body. *Vickery*, i. B-25.

Case of aortic regurgitation in which presystolic bruit was not low-pitched and rumbling, but of loud, sail-flapping character. *Steell*, i. B-25.

Case of aortic incompetence affording an example of Traube's sign,—a double sound in the femoral artery. *Steell*, i. B-25.

Patient in whom could be heard a musical diastolic bruit, perceptible with same intensity in subclavicular, carotid, and vertebral arteries, with symptoms of aortic incompetency, indicative of valvular perforation. *Schlesinger*, i. B-25.

Rarest of all relative insufficiencies; not more than about twenty-five cases reported. *A. R. Edwards*, i. B-25, 26.

TRICUSPID STENOSIS. Case of tricuspid stenosis associated with mitral and aortic stenosis. Diagnosis of tricuspid stenosis rarely made; in eighty-nine cases a diagnosis made during life in less than half a dozen instances. *Ashton and Stewart*, i. B-26.

Heart showing stenosis of the tricuspid orifice. Recognized during life by a diastolic rumbling and a presystolic murmur without repetition of second sound. *Schmidt*, i. B-26.

MISCELLANEOUS MURMURS. Experiments showing fallacy of the Eddy theory as regards cardiac and vascular murmurs. Theory of lateral vibrations in the walls or valves due to the friction of the blood the only rational one. *Geigel*, i. B-26.

ACCIDENTAL MURMURS. Purely accidental murmurs occur wherever the conditions are favorable to an abnormally rapid blood-flow. Physical nature of the blood in anæmia plays a part in causing murmurs, because, having less corpuscles, the whirling motion which causes abnormal sounds is favored. Two cases, with autopsy, to justify this belief. *Sahli*, i. B-26, 27.

GENERAL DIAGNOSIS OF HEART DISEASE.

PERCUSSION-AREA. In children, until beginning of the sixth year, relative dullness of normal heart has practically the same limits as in the adult. From fifth to ninth year dullness varies. At age of 9 infantile præcordia entirely disappeared. In children over 8 years and after, limits of normal præcordia invariably found to differ widely from those of first half of childhood; occasionally as high as second rib. Apex usually one-fourth to one-half inch outside the mammary line. *H. B. Whitney*, i. B-39.

Whitney's conclusions altogether at variance with observation of Stärck, who found between sixth and twelfth years, by the width of the rib, apex-beat, at first outside the nipple, became internal to it after the age of 6 years. *R. Hingston Fox*, i. B-39.

[It might be well to remember that Whitney lives in Denver, 5000 feet higher than where the average mortal resides, and that altitude modifies cardiac action. ED.]

RHYTHM. Cardiac arhythmia in children may occur as a symptom of poisoning, digestive disturbances, diseases of abdominal organs with vomiting, infectious diseases, anæmia and nervousness, intestinal parasites, of excitement, and bathing. *Heubner*, i. B-40.

In cardiac arhythmia frequently observed in the obese, apprehension that grave disease of circulatory and respiratory apparatus present not warranted. But complete irregularity—delirium cordis—is a sign of grave disturbance. *Kisch*, i. B-40.

SENSORY PHENOMENA. Importance, as diagnostic signs, of sensory phenomena exhibited in heart-failure. Thus, many cases of chronic bronchitis are undoubtedly due to heart-failure; but, unless a valvular murmur or some irregularity is present, little regard is paid to it. If sensory symptoms are studied, very frequently they will be so striking as to leave little doubt as to the primary source of the mischief. *J. Mackenzie*, i. B-40 to 42.

GENERAL THERAPEUTICS OF CARDIAC DISEASES. Failure of cardiac tonics to be expected (1) when degeneration of myocardium far advanced; (2) in mechanical obstruction of the circulation; (3) in a combination of degeneration and of mechanical effects of valve-lesions. *T. R. Fraser*, i. B-47.

The one indication for cardiac tonics is cardiac insufficiency. Rather disappointed in use of strophanthus; blood-supply of the heart not so much increased as by digitalis; iodide of potassium in moderate doses dilates arterioles and reduces blood-pressure. *G. W. Balfour*, i. B-47.

Digitalis more successful than strophanthus, latter better for an emergency. If active changes are going on in the heart, iodide of potassium. *Grainger Stewart*, i. B-48.

Key to treatment is condition of heart-muscle. So long as compensation well main-

HEART, DISEASES OF (continued).

tained, digitalis and strophanthus unnecessary. In temporary breakdowns, enfeebled right heart may be aided by digitalis, strophanthus, strychnine, alcohol, and, if greatly engorged, by venesection. *Byrom Bramwell*, i. B-48.

Profession hampered in the use of digitalis by erroneous idea that it is a most dangerous sedative to the heart. Digitalis in every form absorbed with difficulty and slowly excreted; if dose repeated at too short an interval, drug accumulates within system and symptoms of poisoning appear. Most suitable preparation is powdered leaves not over a year old. Chiefly of use in those with feeble, intermitting pulses, soft and readily pitting limbs. When pulse hard and limbs tense and brawny, digitalis of no use. Free purgation must remove some of the fluid before the drug will act. *Balfour*, i. B-48, 49.

Engorgement of portal system almost always present in heart disease. Mercurial purges given in long-continued small doses of the greatest importance in these cases; $\frac{1}{50}$ grain or even $\frac{1}{100}$ grain of corrosive sublimate with tincture of the chloride of iron will effect revolution by aiding true heart-tonics. Adonidine, cactus, convallaria, or others of newer remedies of no real value. Satisfaction in real heart trouble only obtained with nitroglycerin, strophanthus, and digitalis. *Horatio C. Wood*, i. B-49, 50.

Mercury valuable far beyond its supposed alterative action. Special benefits exercised in dilated and hypertrophied heart. To give digitalis a fair chance, preliminary doses of mercury absolutely necessary. *Wm. Murray*, i. B-50.

Case with orthopnœa and ascites and general œdema. Cardiac tonics given for three days with no relief. One-third grain calomel then administered, urine at once rising to over 100 ounces; in ten days œdema and orthopnœa quite gone and heart calm. *Foxwell*, i. B-50.

Active intervention too frequently delayed until degeneration of myocardium renders use of drug futile. Early medication with digitalis when there are enfeeblement of cardiac pulsations; lowering of arterial and rise of venous tension; scarcity of urine, with peripheral œdema and visceral congestion. Digitalis as soon as perimalleolar or pretibial œdema is observed in the evening. Partial or exclusive milk diet for a few days, preceded by a purgative of calomel and scammony. *Huchard*, i. B-51.

Action of digitalis greater on the right heart. *Germain Sée*, v. A-63.

Action of digitalis manifested on the left heart. *German Physiologists*, v. A-63.

Crystallized digitaline, so-called chloroformic, the only one of the products derived from digitalis which represents a really definite principle and constant action. *E. Bardet*, v. A-63, 64.

Of the various derivatives of digitalis most constant in its effects and more constant than digitalis is digitoxine. *G. Corin*, v. A-65.

In valvular disease and myocarditis, digitoxine. Successfully used when other remedies, including digitalis, had been tried in vain. Pulse became stronger and less frequent. *Wenzel*, v. A-65.

One-sixty-fourth grain of crystallized digitaline, administered in one dose, possesses a cardiac regulating and diuretic action equal to $6\frac{1}{2}$ to $9\frac{1}{2}$ fluidounces of the infusion of digitalis. *Edgren*, v. A-64.

Diuretin a valuable diuretic in cases of heart and vascular disease, although less constant in chronic nephritis. *Askanazy*, v. A-67.

When digitaline fails to act as a diuretic, diuretic action may be powerfully increased by addition of coca. *Van Allen*, i. B-51.

Diuretic action of calomel in ascites of cardiac origin. In sixteen cases the quantity of urine rapidly increased; the albuminuria disappeared; the reaction remained acid; the blood-pressure increased as ascites diminished; five patients improved rapidly. *Finkelstein*, i. B-51.

Blood-letting, at times, of life-saving usefulness, when right side of heart becomes engorged and overdistended by increased obstruction to flow of blood through the lungs or left side of heart,—a condition not rarely observed in intense bronchitis, especially when complicating emphysema, pulmonary œdema, and incompetence or stenosis of the mitral orifice present. *J. E. Atkinson*, i. B-51, 52.

In arterial tension, opium and iodides are in the same way followed by a rebound when taken for weeks or months. Can be prevented by giving short courses of sodium salicylate to carry off accumulated uric acid, the cause of increased arterial tension. *A. Haig*, i. B-52.

Double salicylate of sodium, theobromine, or diuretin rapidly arrests asthmatic symptoms and attacks of angina pectoris in cardiac and renal lesions. *Askanazy*, i. B-52.

Strychnine an ideal cardiac stimulant; acts on circulation, respiration, digestion, and assimilation. Especially indicated in weak heart of pneumonia and febrile processes, given hypodermically in $\frac{1}{80}$- to $\frac{1}{10}$-grain doses, repeated until sign of drug is manifested. *W. C. Krauss*, i. B-53.

Ergot, the most generally useful vasoconstrictor. In cases of cardiac disease, marked by a pulse of tension and tendency to passive congestions. If pulse already slow, heart can be stimulated by caffeine. *Wilcox*, i. B-53.

Injections of camphorated oil, employed in Germany to combat cardiac collapse during infectious diseases, especially pneumonia, not given in sufficiently large doses. Fifteen and one-half grains of camphor in oil, 10-per-cent. solution, repeated if required. Efficacious and very rapid. Whenever, in a child with infectious disease, pulse becomes soft and frequent and heart's action feeble, caffeine subcutaneously or internally very useful. *Schilling*, i. B-53, 54.

[Fifteen grains of camphor at one time should be regarded as a maximum dose, especially when given subcutaneously. The capacity of an ordinary Pravaz syringe is about 12 minims. WHITTIER AND VICKERY, Assoc. Eds., i. B-54.]

The Schott treatment,—baths containing mineral substances and free carbonic-acid gas in solution, and a series of graduated gentle exercises or gymnastics. *Broadbent*, i. B-54.

Schott's treatment has given astonishing results. Each exercise made extremely slowly and regularly. Aneurism and advanced degree of arterio-capillary fibrosis with high tension a contra-indication. *Wethered*, i. B-55.

May be dangerous in degenerative changes of blood-vessels and myocardium, aneurism, advanced arterio-sclerosis, acute softening, great fatty degeneration. *Babcock*, i. B-55.

[The necessity for considering each individual case by itself has not been done away with by the promulgation of the Schott method. It is an advantage to have brought distinctly to our minds the possibility of relieving an overloaded heart by diverting the blood into the capillaries of the skin, and to know that there are gradations from absolute repose in bed to active voluntary exercise; but it is not necessary nor even safe to have these stimulating baths and opposed movements employed upon every cardiac sufferer. G. Herschell, of London, has been led, by his own experience with patients, to take a more conservative view of the Nauheim treatment than seems at this moment to prevail. He hopes medical men will "pause before they introduce into their routine practice a method of treatment the effects of which are so little known and the indications for which are so imperfectly understood." WHITTIER AND VICKERY, Assoc. Eds., i. B-55, 56.]

A position intermediate between massage and Œrtel cure. *Lauder Brunton*, i. B-55.

DIRECT CARDIAC STIMULATION. Case of endocarditis and pericarditis with effusion, in which accidental tapping of right ventricle after apparent death was followed by recovery. *Sloan*, iii. B-38.

Case in which hypodermic injections of stimulants would not revive heart's action; $\frac{1}{15}$ grain of sulphate of strychnia injected into heart-muscle. Heart's action slowed down. After one more injection of $\frac{1}{20}$ grain, heart beating about 100 per minute quite regularly. Two other cases,—one successful, the other unsuccessful. *Clark*, iii. B-38, 39.

Hypodermic paracentesis needle for exploratory puncture. *Huggard*, iii. B-39.

Fine director, to which suitable handle is attached, fitted to an exploring-needle. *Prichard*, iii. B-39.

New rib-shears, probe-pointed; lung and pleura not endangered in its introduction. *St. John*, iii. B-40.

INSTRUMENTS. Differential stethoscope to take separate cognizance of perceptions received through one ear as distinguished from those received through the other. *A. H. Smith*, i. B-42.

Stethoscope to arrest humming sound collected by metallic surfaces of such instruments. *Mark Knapp*, i. B-42.

Stethoscope for patients whose chests are very sensitive. Stethoscope to provide concentration of sound. *R. H. Valentine*, i. B-43.

WOUNDS OF THE HEART AND PERICARDIUM. From experiments on dogs, opinion that suture of heart possible in case of wounds. *Del Vecchio*, iii. B-36.

Case in which anatomical location of bullet-track makes it impossible for heart to have escaped direct penetration. Recovery. *Masten*, iii. B-36, 37.

Case of wound of pericardium. Incision, eight inches long, over and parallel with fourth rib; six inches of it resected. Pleural cavity filled with fluid and clotted blood. Wound in pericardium, two inches in length, sutured with difficulty, owing to movements of heart,—140 pulsations. Pleural cavity irrigated with hot water; wound closed. Recovery rapid. *Dalton*, iii. B-37.

Paracentesis of pericardium but rarely performed. Great relief afforded in case of granular kidney, cardiac dilatation, and uræmic asthma; life prolonged several weeks. May be safely undertaken with ordinary precautions. Most suitable place left intercostal space, one inch from edge of sternum. May be performed in effusions of rheumatic or primary origins, and in later stages of general dropsy, if fluid in pericardium is adding to cardiac difficulty. *Kidd*, iii. B-37.

Conclusions not indorsed. Expediency in doubt. *Sansom*, *Sheild*, *Carr*, iii. B-37.

Although very little fluid may appear externally, exudation may escape through puncture into cellular tissue of mediastinum. *Cousins*, iii. B-38.

Disappearance of fluid after limited flow due to powerful impression made on nervous system by the thrusting in of a needle in the neighborhood of a vital organ. *Sharp*, iii. B-38.

HEAT-STROKE; INSOLATION.

PATHOGENESIS. Exercise strongly favors production of heat-stroke. Excessive temperature acts directly on the nervous system and not by inducing auto-intoxication or coagulation of muscle-fibre. *Laveran*, i. G-66.

Opposite results, dogs kept in the sunlight dying in a state of immobility. Rigidity of heart or coagulation of muscular fibres thus shown. *Vallin*, i. G-66.

TREATMENT. The only method by which excessive fever can be controlled is the cold bath in the most active form; same active friction of the skin necessary as is employed in the Brand treatment, bringing hot blood from centre of the body to the periphery. Still colder application to the head to prevent fatal cerebral congestion. Equally important is venesection, which should be copious, particularly indicated in cases in which there is much cyanosis or convulsions. Secondary and tertiary rises of temperature frequently occur, suddenly shoots up, remaining high persistently. In severe headache during convalescence, venesection of greatest value; drugs tending to produce cerebral congestion, such as quinine, to be avoided. *The Therapeutic Gazette*, i. G-66, 67.

[In extreme cases the use of two quarts (litres) of cold water by enteroclysis would seem to be indicated, and this procedure may be repeated as often as required. JUDSON DALAND, Assoc. Ed., i. G-67.]

During convalescence, if pulse bounding, veratrum viride and bromide of sodium useful; if pulse weak, ergot. Counter-irritation to the nape of the neck where evidences of meningeal irritability exist. If surface of body very cold, high injections of cold water into the colon reducing heat and driving congested excess of blood to the surface. If heat-exhaustion in which there is an unusual fall in bodily temperature, hot injections or baths. *E. C. M. Page*, i. G-67, 68.

In collapse, injections of ether first, then injections of caffeine. *Vantalon*, i. G-68.

HEMIPLEGIA.

SYMPTOMATOLOGY. Of 30 cases of hemiplegia, in 7 only was there no respiratory difficulty; of these, 6 were females; in all recovery relatively rapid. Paralysis of respiration disappears several weeks or months after paralysis of the members. *Grawitz*, ii. A-23.

Case of hemiplegia as a result of gonorrhœa. Motor affection of limbs remained distinct and considerable. *L. Bruns*, ii. A-23, 24.

Case of intention-tremor in infantile hemiplegia in a female patient aged 25. *T. Cohn*, ii. A-24.

Case of double hemiplegia with double hemianopsia and loss of geographical centre. *Thomas M. Dunn*, ii. A-24.

Case of hemianæsthesia and crossed hemiparaplegia following commotion from being thrown to the ground on the back. *H. Reynès*, ii. A-24.

Case of pneumonic hemiplegia. *Massalongo and Bonatelli*, ii. A-24.

Case of cerebral hemiplegia following whooping-cough. *Neurath*, ii. A-24.

Shock of knee-reflex on diseased side causes a sudden cry, while on healthy side no such cry is to be noted. Diminution of the size of diaphragmatic wave of Litten on the paralyzed side especially marked in infantile hemiplegia. *Féré*, ii. A-24.

HERNIA.

ETIOLOGY. Hernia independent of race. Well-to-do people freer from hernia than poorer classes. After 40 years proportion rapidly increases. *Bertillon*, iii. C-125.

Case in which patient's both parents affected, brother and son also. Overpatent inguinal rings apparently inherited. *J. Kynaston Couch*, iii. C-125.

Seven thousand, four hundred, and thirty-three cases in the male and 2534 in the female; inguinal hernia in 96 per cent.: double in 4126 cases; occupying right side in proportion of 1.46 to 1. Congenital origin definitely ascertained in 479 cases.

DIAPHRAGMATIC HERNIA. Patients suffering from diaphragmatic or phrenic hernia do not often reach adult age; the large majority of congenital herniæ of this kind found when necropsies made on children. Protrusion usually on left side; signs much like those of pneumothorax and may be mistaken for it. *A. J. McClosky*, iii. C-160.

Case of congenital defect of the diaphragm with combined diaphragmatic hernia. *F. Fry*, iii. C-161.

Case of diaphragmatic hernia following fall ten years before, in which thoracic cavity found to contain the stomach, all the small intestine at a point eight inches above the ileo-cæcal valve, and part of large intestine. *S. Chandler*, iii. C-162.

Case of old diaphragmatic hernia treated with success by an extensive plastic operation on the side of the chest. *Llobet*, iii. C-163.

Case of diaphragmatic hernia in an infant dying two days after birth. Large opening in left half of diaphragm; stomach vertical and occupying left half of the thorax; part of liver, transverse colon, and small intestine having also passed into the thorax. *Clozier*, iii. C-164.

Similar case, organs having passed through a hole occupying the greater part of the left side of the diaphragm. *G. G. Sears*, iii. C-164.

FEMORAL HERNIA. Rare in children.

Three varieties most frequently met with are inguinal, umbilical, and ventral, in the order named. *De Garmo*, iii. C-153.

[Several cases of femoral hernia in children under 8 years have been operated on at the Hospital for Ruptured and Crippled in New York. BULL AND COLEY, Assoc. Eds., iii. C-153.]

Case of strangulated femoral hernia in a woman, aged 61 years, showing persistence of symptoms of strangulation for sixteen days and eighteen hours. Persistence of stercoraceous vomiting for fifteen days. Recovery. *Weissinger*, iii. C-153.

Cyst obtained from a case of femoral hernia,—one of several cases observed. *J. B. Roberts*, iii. C-153.

Case operated upon by Hunt in which there was a cyst in which echinococcic hooklets were found. Hernial sac a favorite place for the development of the echinococcus. *Morton*, iii. C-153.

[This case was probably a simple "hydrocele of a hernial sac." A similar case was operated upon at the New York Hospital by W. T. Bull. BULL AND COLEY, Assoc. Eds., iii. C-153.]

INGUINAL HERNIA. Case of right inguinal hernia in a female infant in which hernial sac found to contain the uterus, both Fallopian tubes and ovaries, and a knuckle of intestine. *Leopold Hudson*, iii. C-144, 145.

Case of inguino-labial hernia, with ovary, Fallopian tube, and cornu of the uterus in the sac. *G. W. Perkins*, iii. C-145.

Case of inguinal hernia containing the bladder, ovary, and Fallopian tube. *Reymond*, iii. C-145.

Case of obstruction of the bowels caused by incompletely-reduced left inguinal hernia. *W. C. E. Taylor*, iii. C-145.

TAXIS. Two cases illustrating practicability of combined taxis. Middle and index fingers of right hand passed into rectum, pushing toward internal ring, and pressure on abdomen over ring with left hand, making gentle manipulation. *G. M. Wells*, iii. C-159.

By pressing well up from without, anus can be brought within three-fourths of an inch of internal ring. *Cauthorn*, iii. C-159.

Combined taxis under chloroform for half-hour in 2-month child successful after usual means had failed. *Brown*, iii. C-159.

[We believe that the practice of taxis under an anæsthetic for half an hour is very dangerous. Operation would have been attended with much less risk. We have seen one instance in a child in which death was caused by taxis less prolonged than in the above case. BULL AND COLEY, Assoc. Eds., iii. C-160.]

RADICAL CURE OF HERNIA. Ligation of sac as high as possible emphasized; torsion not recommended, may produce necrosis; displacement of neck of sac of little prophylactic value; use of an organic button not thought of any real advantage. Greatest stress laid on need of firmly closing hernial canal by sutures passed through the neighboring muscular and aponeurotic structures. *E. Kummer*, iii. C-127.

Varying periods at which alteration of tunics takes place in different cases explain difference in mortality between radical cure and herniotomy done as a last resort. In latter, 22 per cent. deaths; in former, only 3 deaths in 800 operations. Anæsthesia should be avoided, if possible. Cocaine has great hyposthenic effect; ether increases predisposition to pneumonia. *Roux*, iii. C-127.

Weak point of Bassini's operation is the cutting of the oblique externus, which may lead to gangrene. Better to connect Poupart's ligament with lower border of deeper abdominal muscles by single pair of deep sutures. *G. Ekehorn*, iii. C-128.

[The cutting of the aponeurosis of the external oblique muscle is an absolutely essential step in Bassini's operation. Without it the high ligation of the sac is impossible. The fear of gangrene is purely theoretical, and practical experience shows it to be groundless. BULL AND COLEY, Assoc. Eds., iii. C-128.]

Failures arise chiefly from stump of sac being left to occupy internal ring; most important to close latter satisfactorily. *Hume*, iii. C-128.

Personal method original; published prior to publication of Bassini's operation, and therefore in no sense a modification of that procedure. Modification to original operation is the use of silver wire for closing the large wound which he makes in transplanting the cord. *William S. Halsted*, iii. C-128.

[Silk was originally used by Halsted for the buried sutures, and abandoned on account of the tendency to form sinuses and to become extruded. Silver wire or any other non-absorbable suture is open to the same objections as silk. BULL AND COLEY, Assoc. Eds., iii. C-129.]

Bassini and Halsted operations favored because the canal can be cleared of all foreign substances. Repair begins at internal ring and structures restored to as normal a condition as possible. *W. B. de Garmo*, iii. C-129.

Slight change in former personal technique. Twisting of sac no longer done, and instead of turning the sac down over the inguinal ring it is fastened above the artificial opening through which it is drawn. All cases operated personally free of recurrence. *Kocher*, iii. C-129.

[Any method which makes use of the sac as an artificial barrier to recurrence is open to grave objection. There is no evidence

HERNIA (continued).

that it strengthens the canal, and to leave such a poorly-nourished tissue invites suppuration and, therefore, recurrence. BULL AND COLEY, Assoc. Eds., iii. C-129.]

Technique of Bassini operation not generally understood, owing to few accurate descriptions in English. Details of important steps of operation (see text) of 112 cases operated upon by the Bassini method with kangaroo-tendon for buried sutures; not a single relapse occurred and not a single case has worn a truss. *W. B. Coley*, iii. C-129.

Radical treatment of inguinal hernia in childhood; many cases not curable by the truss; operation preferable and very well borne, recovery taking place, on the average, in ten days. Thirty-four cases with one relapse and one death in a tubercular child. *Bittner*, iii. C-131.

[The author condemns the use of the truss in childhood too strongly. This period is by far the most favorable for curing hernia by mechanical means, and we have failed to note any bad effects upon the mental condition of children. BULL AND COLEY, Assoc. Eds., iii. C-131.]

Radical cure in a child by the implantation of a section of aseptic sponge to occlude the internal ring. Inguinal canal opened in the usual way, hernia reduced, and a small piece of sponge, made completely aseptic, sewed in. Sponge has caused no disturbance. *Walter B. Platt*, iii. C-131.

[The implantation of a sponge or of any foreign body in the hernial canal for the cure of hernia is one without rational foundation, and should be condemned. The scapula of a dog was once used for the same purpose, with failure as a result. BULL AND COLEY, Assoc. Eds., iii. C-131.]

Table of final results of 55 cases of inguinal hernia: 10 recurred; of 36 healing by primary union, 4 recurred; of 19 in which there was suppuration, 6 recurred. These figures show that primary union is more favorable to permanent cure than granulation, and that Bassini's is better than operations in which the cord is not transplanted. *W. T. Bull*, iii. C-131.

Case in which there was marked constriction opposite the external abdominal ring, beyond which the sac again became dilated into a large pocket filled with omentum more or less adherent to the wall and situated between the abdominal muscles. Importance of opening inguinal canal so as to enable the depressed fibres of internal oblique to be seen and accurately sutured. *Carless*, iii. C-132.

A new operation for the radical cure of hernia. Following advantages claimed: A large, strong flap of any needed size to fill internal ring. Triplicate layers of aponeurosis. Interlocking layers giving broad surfaces of union, shortening of anterior as well as posterior wall of the canal, making them mutually supporting and relieving tension on deep suture. Cord amply protected. (See text.) *Andrews*, iii. C-132.

[This method may be an improvement over Bassini's method in certain cases where the aponeurosis is very lax, but in most cases we believe the disadvantages from increased tension would more than offset the advantages to be gained by the overlapping. BULL AND COLEY, Assoc. Eds., iii. C-134.]

Report of 125 cases of hernia in which radical cure was performed. Portion of the sac used as a plug, excising the rest. In large sacs lesions laid open, ring closed and packed with iodoform gauze. The ring always a wound through abdominal wall, which should be closed. Bassini's method safe and sure and prevents all danger of strangulation. *Ernest Laplace*, iii. C-134.

One hundred operative successes out of 100 cases, but 2 subsequent deaths, both due to diseases of the lungs. Sac ligated with boiled silk. Parietal incision united by interrupted sutures one-fourth of an inch apart. Pillars of external ring also stitched. Drainage never employed. *Delorme*, iii. C-134.

Kocher's method gives results in no way inferior to those of Macewen and Bassini, and, by being much simpler, is less liable to disturbance in healing. *Beresowsky*, iii. C-134.

[The results of Kocher's operation are altogether too recent to be compared with those of Bassini's operation. But comparatively few of Kocher's reported cases were done by his method. BULL AND COLEY, Assoc. Eds., iii. C-135.]

Eighty-four cases operated on by a method resembling the procedure of Lucas-Championnière, 67 followed up; of this number 61 had not had a recurrence of hernia. Of these, 50 had been operated from two to eight years. Wearing of a truss favors relapse by causing atrophy of the tissues. *O. Von Bünger*, iii. C-135.

Objections to non-absorbable sutures not theoretical, but based on actual experience. Sixteen cases quoted, including three personal ones, in which the disadvantages have been emphasized, relapses following. They should be abandoned unless those who advocate their use are able to show some advantages to offset the serious disadvantages. *W. B. Coley*, iii. C-135.

Inguinal and femoral hernia in children, if reducible, should be operated upon only when large or painful; if irreducible, they should always be subjected to operation unless there is some special contra-indication. Umbilical herniæ in children seldom need operation; in adults, whether reducible or

not, they should usually be operated upon. *J. B. Roberts*, iii. C-136.

[We do not believe operation should be recommended in the majority of the voluminous and irreducible umbilical herniæ in adults. The operation itself is a most formidable one, and the chances of cure are small. Much can be said in favor of operating upon these herniæ when small and reducible. BULL AND COLEY, Assoc. Eds., iii. C-137.]

The Bassini and Halsted methods have given such satisfactory results that simple reducible hernia should be included among the indications. Between the Bassini and Halsted, preference given to the latter for the majority of cases. *J. B. Deaver*, iii. C-137.

[The reasons for preferring Halsted's operation are purely theoretical. Practically, the results are in favor of Bassini's method. BULL AND COLEY, Assoc. Eds., iii. C-137.]

There is no best operation for the radical cure of hernia. Different cases, presenting entirely different conditions, should be dealt with by that method which will best carry out the cardinal objects of the operation. *C. S. Briggs*, iii. C-137, 138.

[The ordinary surgeon is not likely to become equally skillful in performing half a dozen different methods, and, moreover, the conditions do not vary sufficiently to make it wise to employ a number of methods. Bassini's or Halsted's method can be used in nearly every case of inguinal hernia. BULL AND COLEY, Assoc. Eds., iii. C-138.]

Results of 200 cases treated by radical operation, with but 1 death,—due to double pneumonia. Bassini's method employed in 165 cases. One hundred and sixty kangaroo-tendons employed for buried sutures. Suppuration in but 7 cases; 95.5 per cent. healed by primary union. Subsequent history traced in 154; not a single relapse. Two, 3 to 3½ years; 30, 2 years; 76, more than 1 year. Results of Halsted's operation, immediate and final, inferior to Bassini's. Technique of latter simpler, and, after a little experience, operation can be performed in from fifteen to twenty minutes. *Coley*, iii. C-138, 139.

One hundred and ninety-nine cases of inguinal hernia operated by the Bassini method. Total mortality was 3 per cent. Sepsis and pyæmia in four cases. In thirty cases, an interval of three years; hence absolute cures. *Massopust*, iii. C-139, 140.

In inguinal hernia sac descends without any reference to the cord. Rupture independent of relations to the cord. In many cases, although the sac may envelop the cord, it is distinct from it and easily separated. Sac may be stitched up and made to form a plug at the ring, and the cord is left untouched. Afterward, any other operation, such as McBurney's, may be done. *Packard*, iii. C-140.

Belief that surgeons would never return to leaving the sac. Not at all satisfied with results of personal operation in comparison with those of other operations more recently devised,—that of Halsted, for instance. *McBurney*, iii. C-140, 141.

Personal operation nothing more than sewing up the wound which nature and the surgeons have made. Removal of veins only when they are enlarged, to avoid loss of testicle. Removal of sac not proved absolutely essential in all cases, but very important in most. Three weeks not too long to keep patient in bed. In a patient dying from another cause, twelve days after operation, autopsy showed that wound could be easily torn open. *Halsted*, iii. C-141.

Four hundred and seventy-seven operations for radical cure in children under 15 years,—14 umbilical, 41 inguinal in girls, 395 inguinal in boys. Of all these, a single one, a boy, died from septic peritonitis. Operation therefore a benign one, and should be undertaken in all complicated cases or those in which the hernia cannot be kept in place. Of 250 cases seen after six months, only 3 had a relapse; 2 again operated on and definitely cured. The operation the same for the child as for the adult. *Broca*, iii. C-141, 142.

COMPLICATIONS. Great increase in frequency of wounds of the bladder, of late years, attributed to the altered methods of operating for hernia. When bladder has been recognized before being injured it should be freed and reduced, ring being closed, as usual, by sutures. In cases in which it is difficult to dissect the bladder from surrounding parts, it is wise to abstain from any attempt at radical cure and leave the pouch *in situ*. If a distinct diverticulum found, best to resect it, closing the opening in the bladder with sutures, rather than to return such a long pouch into the abdomen. When bladder wounded, the suture should be used, if in any way possible. Gave excellent results in a case described. Sutures placed very close together, ten or twelve to an inch, and in three layers, first tier passing in through everything except mucous membrane *B. F. Curtis*, iii. C-164.

Case in which part of bladder covered by peritoneum had extended almost three-fourths inch along the posterior wall of the sac, and was so ill-defined that, unless an operator was on the look-out, it might readily have been included in the ligature. *Lane*, iii. C-166.

Two cases of injury to the bladder during operations for hernia. Recovery. *A. G. Gerster*, iii. C-166.

Similar case, ending fatally. *L. W. Hotchkiss*, iii. C-166.

HERNIA (continued).

When hernial sac has been opened it is generally possible by certain signs to recognize or at least suspect presence of bladder. Valuable sign, rarely absent, is prevesical lipocele. A fatty mass of lemon-colored tint, sometimes homogeneous, sometimes shows distinct little islets. It is firmly adherent to the sac; in dissecting latter, danger of wounding the bladder. Sometimes the bladder is immediately adherent to sac, without any adipose tissue between. If bladder wounded, necessary to resect as completely as possible the herniated vesical diverticulum; suture made with greatest care, bladder not reduced, and ring left often, so that urine may flow out freely in case reunion of vesical wound not obtained. If bladder intact, better to reduce it and close the ring. *N. Ostermayer*, iii. C-166.

General anæsthesia in patients with hernia suffering from grave abdominal disease, depreciated in health, or in a state of collapse. Danger greater with chloroform than with ether. *Guinard*, iii. C-167.

Case of fæcal fistula of two years and two months' standing, following herniotomy for strangulated hernia. Operation. Recovery. *Anthony Bowlby*, iii. C-167.

INJECTION TREATMENT. Good results, in inguinal and umbilical hernia in infants, from injection of 15 minims, into neighborhood of ring, of an artificial serum composed of phosphate of sodium, 5 parts; sulphate of sodium, 10 parts; distilled water, 100 parts. A single injection may be sufficient; in most cases three or four at intervals of a week necessary. During treatment hernia to be retained by pledget of cotton-wool supported by a bandage. Seven cases, one cure persisting two and a half years; another fourteen months; another seven months; others too recently treated to justify conclusion. *Luton*, iii. C-142.

[Since most cases of hernia in infants are cured by a truss or bandage, it is much more reasonable to believe the cures in these cases were due to the bandages instead of the injections. Bull and Coley, Assoc. Eds., iii. C-142.]

Technique of the injection treatment. (See text.) From six to twelve injections usually suffice. The older the patient, the longer the time required. Composition of fluid used: complex salts of aldehyde, 30 per cent.; iodo-ethylate of guaiacol, 30 per cent.; sulphotannate of zinc, 20 per cent.; free guaiacol, 5 per cent.; beech-wood creasote, 15 per cent. Water decomposes the fluid. Percentage of cures greater than by operative procedure if proper instruments and fluid be used. *Walling*, iii. C-143, 144.

[There is no reliable evidence to prove that "the percentage of cures is greater than by operative procedure," and, in fact, the writer presents no evidence that permanent cure has resulted in any case. With the mortality of the radical operation reduced to almost *nil*, and with definite results known, operative methods will continue to be advocated in preference to all injection methods. Bull and Coley, Assoc. Eds., iii. C-144.]

UMBILICAL HERNIA. Umbilical hernia in adults which exposes patients to grave complications should be treated by radical cure (1) when it is irreducible; (2) when it is incoercible; (3) when it is painful. Radical cure is indicated in children (1) when trusses have failed; (2) when the hernia tends to increase in size; (3) when it is irreducible and causes functional disturbances. *Jules Bœckel*, iii. C-145, 146.

Umbilical hernia of infants occurs through the umbilical opening, and is anatomically and clinically different from that of adults. Where it occurs between the fibres of the linea alba in the immediate neighborhood of the old omphalic ring, the latter causes a tighter and more inelastic constriction; this tightness is the cause of the great mortality. *Warbasse*, iii. C-146.

[We do not believe that this difference exists in the majority of umbilical herniæ in adults. The greatest factor in producing the higher mortality in strangulated umbilical herniæ is the fact that in these cases the hernia is usually very large and complicated with numerous adhesions. The patients themselves are usually very poor subjects for operation. Bull and Coley, Assoc. Eds., iii. C-146.]

Case of large congenital hernia of the umbilical cord. Strapping with adhesive plaster and bandage causing reduction to small size rare, and prognosis unfavorable. *Coley*, iii. C-146.

Operative treatment especially indicated in an infant when hernia causes symptoms of strangulation or is associated with persistent gastro-intestinal troubles which cannot be attributed to any other cause. (See text.) *Cahir*, iii. C-146, 147.

[Most cases of umbilical hernia in children are cured before puberty and operation is but very seldom indicated. Bull and Coley, Assoc. Eds., iii. C-147.]

Case of umbilical hernia in a child of 15 months treated by radical method. First indication is to find out why the protrusion has occurred. May be acquired through perpetual straining, vomiting, etc., in which case a flat pad is strapped over aperture; properly-regulated food sometimes occasions a cure. *Ed. Owen*, iii. C-147, 148.

Fatal case of inflamed and irreducible omphalocele. Early taxis called for in these cases; the greatest care should be taken to prevent the cord becoming septic during the

process of separation. Abdominal section as soon as taxis found useless; every minute of delay jeopardizes a successful result. *D'Arcy Power*, iii. C-148.

Favorable conditions by operation for the radical cure of umbilical hernia illustrated by five cases. In most cases it would be far better for the patients to undergo operation in the early stage. In closing the opening in the linea alba in old-standing cases, it is much more difficult to bring the edges together and keep them there than in more recent ones. *Page*, iii. C-148, 149.

Main objects of radical cure: to remove the sac, to secure its pedicle, and to close the orifice in the abdominal wall by sutures arranged in rows, so as to establish a firm cicatrix. Secret of successful surgical treatment is never to allow the swelling to attain a large size. Important to propose radical cure in every instance in which the swelling is still small and in an early stage. *Lucas-Championnière*, iii. C-149.

Radical cure by Quénu's method. Aim to restore as much as possible the fibrous layers of the linea alba after reduction of the contents and resection of the hernial sac, accomplished by moving toward the median line and obtaining a superposition of sutures of following strata: (1) peritoneum; (2) posterior lip of sheath of rectus; (3) two bodies of the rectus; (4) two anterior lips to their sheath; (5) skin. Superior to omphalectomy; less severe. *Roger*, iii. C-149, 150.

Removal of sac of an umbilical hernia, irreducible for twelve months and having existed for fourteen years. Obstruction complete for three days. Recovery mainly due to the fact that colon had become greatly hypertrophied and strong. Was able to at once resume its peristaltic action. *Howard Marsh*, iii. C-150.

Modification of Dauriac's method consists in making two longitudinal incisions in recti muscles in the middle third of their length, dividing them into two bands. Internal bands, including anterior portion of their sheaths, divided transversely above, while two external portions remain. After their detachment the two bands are much less retracted; this permits of their being crossed over the point where the umbilical opening formerly existed. *Tillaux*, iii. C-150, 151.

[It may well be doubted if this elaborate procedure has any advantage over the simpler one of suture in three layers of peritoneum, fascia, and skin. Bull and Coley, Assoc. Eds., iii. C-151.]

VENTRAL HERNIA. Of 1000 cases of laparotomy nearly one-third of cases suffer from ventral hernia. In some it does not develop for one or two years after operation. In Olshausen's clinic best results obtained by suturing abdominal walls after laparotomy by three tiers of sutures,—peritoneum, fascia, and skin. Two hundred and twelve cases thus sutured, only twelve of hernia. *Winter*, iii. C-151.

Thirty-eight recent cases of hernia of the linea alba, showing most frequent situation of hernia to be in middle line of abdominal wall, within an inch of upper margin of umbilicus. Often follows violent exertion and blows on front of abdomen. In most instances operation for radical cure indicated. *Niechues*, iii. C-152, 153.

Case of ventral hernia with strangulation of omentum. *E. E. Montgomery*, iii. C-153.

MISCELLANEOUS. Case of strangulated lesser omentum, which had dragged the anterior border of the liver and the stomach toward the hernial ring. Lesser omentum resected and sutured in its hernial portion; pedicle sutured in peritoneal cavity; wall sutured with three rows of silk sutures. Results were excellent. *Tipiakoff*, iii. C-167.

Three cases of sackless hernia of the sigmoid flexure through the left inguinal canal. Gut covered by peritoneum over only half its circumference. *William Anderson*, iii. C-168.

Attempt to form a mesentery in a similar case. *H. Morris*, iii. C-168.

Advisable when operating to close the inguinal canal as completely as possible. *Anderson*, iii. C-168.

Only nine cases of prolapse of the Fallopian tubes and twenty-four of the vermiform appendix (alone) in literature. Case of each in which distinctive feature was that basal part of organ had prolapsed, free and remaining in the general cavity. *Maydl*, iii. C-168.

Two cases of the appendix (alone) and nine cases of cæcum and appendix in the hernial sac. *Coley*, iii. C-168.

Reduction should be attempted in hernia of vermiform appendix, if latter not perforated or gangrenous, in which case resection indicated. Three cases of hernia of vermiform appendix alone, and in four an additional loop of intestine. *L. Kraft*, iii. C-168.

Case of probable lumbar hernia operated upon by W. T. Bull over a year before. Tumor very near the triangle of Petit, though a little too far anterior. Sac opened and removed entirely; wound closed in two layers, using kangaroo for deeper sutures and catgut for the skin. A year afterward no evidence of recurrence. *W. B. Coley*, iii. C-169.

Case of multiple hernia with hydrocele and strangulated femoral hernia; operation; recovery. *Ethelbert Collins*, iii. C-170.

Case of saccular pseudocyst with hernial lipoma. In operating femoral vein wounded, but sutured immediately with catgut. Recovery. *Chavannaz*, iii. C-170.

HERNIA (continued).

Three new cases of hernial tuberculosis added to the nineteen already recorded in literature. *Tenderich*, iii. C-170.

Case of strangulated femoral hernia, sac containing a gangrenous diverticulum, the spread of gangrene being internal to the stricture. *W. G. Spencer*, iii. C-170.

Case of hernia of the large intestine into the sheath of the right abdominal major simulating a fibroma of the wall. *Duplay*, iii. C-170.

Case in which inguinal hernia, with ectopia of the testicle, gave rise to hysteria, etheromania, and inebriety. Complete recovery after radical cure of hernia. *Delagénière*, iii. C-170.

Case of ruptured fœtal cyst of tube simulating strangulated inguinal hernia. *Malherbe*, iii. C-170.

STRANGULATED HERNIA.

GENERAL. Bacteria may be present in the fluid before structural alterations have occurred, but, clinically, the fluid is to be regarded as sterile. Against certain forms of bacteria the fluid of the sac, both in man and in other animals, possesses a destructive influence. *Tietze*, iii. C-154.

Case of strangulation by a knot of peritoneal bands. Fibrous peritoneal bands frequently form after operations in the lesser pelvis. When one of them has been found, a careful examination of intestine should be made to see if there are others. *Commandeur*, iii. C-154.

Successful intestinal anastomosis after the loss of thirty inches of small intestine from twisting in a hernial sac. *J. R. Johns*, iii. C-154.

In treating cases by application of ether, patient placed in the horizontal position with pelvis raised, the thighs and legs flexed ; surrounding part anointed with olive-oil; 1 or 2 fluidounces of ether sprayed upon tumor. In from three-fourths of an hour to three hours the tumor will have lost volume and tension, and slight taxis will cause rapid reduction This method practiced for over two years ; twenty successes in twenty-five attempts. *Finkelstein*, iii. C-154.

Above method only applicable in country-practice at the beginning of strangulation, when it is impossible to operate. Unjust to delay operation whenever latter possible. *Gussenbauer*, iii. C-154, 155.

Statistics of resections of intestine showing that the establishment of an artificial anus gives better results than intestinal resection in the treatment of strangulated and sphacelated hernia. *E. Becker*, iii. C-155.

Operation on a child, 18 days old, fifty-seven hours after the onset of symptoms of strangulation. Rapid recovery. *E. Evans*, iii. C-155.

Thirty-two operations for strangulated hernia; twenty-four recoveries and eight deaths. Mortality depended on incurable nature of cases, abuse of taxis, delay in operating. After thirty-six hours taxis should not be attempted, but operation performed. In cases in which gangrene of small intestine has occurred or is imminent enterectomy followed by enterorrhaphy. *Ch. Villems*, iii. C-155.

[Enterectomy should depend on the condition of the patient and the skill of the surgeon; Bull and Coley, Assoc. Eds., iii. C-155.]

In a child 3½ months old bowel would not go back until the child was held up by the heels, when it became reduced in a moment. *Stephen Paget*, iii. C-155.

Of 106 patients operated 31 died. Death-rate would be reduced by 50 or 75 per cent. if hernial patients were operated upon at once, instead of putting off the only certain mode of relief till exhaustion, gangrene, paralysis of the bowel with septic absorption, or peritonitis make operation too late. All symptoms outweighed by a sudden appearance or increase in the size of a hernia; pain, either in the hernia or about the umbilicus, and nausea. *G. A. Wright*, iii. C-156.

Primary resection of intestine for strangulated hernia, with lateral anastomosis by means of plaques of potato. Twenty-six cases in literature in which the method was used; mortality, 27 per cent. *Razoumowski*, iii. C-156.

Strangulated hernia following slight blow; herniotomy; circulation in loop re-established, although it had presented an almost gangrenous appearance. *Fikri*, iii. C-156.

Case of strangulated hernia with resection and anastomosis by Murphy's button, in which death occurred from kinking and strangulation due to the weight of the button. *Abbe*, iii. C-156.

Case of strangulated hernia in an infant 16 days old. Gut very tightly constricted by outer pillar of inner ring. Gut having suspicious look, although constricted a very short time, shows danger of delay in operating. *F. J. Lambkin*, iii. C-156.

Case in which strangulated hernia found full of clear fluid with a knuckle or two of gut protruding through the internal ring into a dilated canal of Nuck. Gut easily returned when pressure of fluid removed. Cause of strangulation then obvious. *F. Shearer*, iii. C-157.

[Strangulation is not produced by increase of fluid in the sac. Bull and Coley, Assoc. Eds., iii. C-157.]

Case of strangulated oblique inguinal hernia in a child, 2½ years of age, with bladder imprisoned in the hernial sac and inguinal canal. Child very weak and rad-

ical operation not deemed expedient. Wound filled with iodoform-gauze compress and left. First five days small catheter kept in the bladder through urethra. Patient recovered. *John A. Wyeth*, iii. C-157.

Case in which abdomen opened in the middle line rather than in the inguinal region. Coil of small intestine strangulated in the sac and thrust into the pelvis. Strangulation eased. Gangrenous bowel withdrawn, resected, and ends united with Murphy's button. Fourth urgent and almost hopeless case in which button employed, though hitherto with no success. Murphy's button of greatest possible value in practical surgery. *Owen*, iii. C-157.

[In the majority of cases of gangrenous hernia, unless the patient is in exceptionally good condition and the surgeon is familiar with the technique of resection, the better policy is to form an artificial anus. BULL AND COLEY, Assoc. Eds., iii. C-158.]

Murphy's button used in a case of umbilical strangulation by a constricting band. Recovery uneventful, but button not passed until twenty-fourth day,—two days after patient had been allowed to get up. It gripped a ring of necrosed gut. *Gilbert Barling*, iii. C-158.

Case in which sixteen inches of gut gangrenous; resected and a V-shaped piece of its mesentery excised. No pain nor rise of temperature. Bowels moved third day. Button found in the rectum on the twentieth day and had to be extracted with forceps. *Stuart McGuire*, iii. C-158.

Case of strangulated inguinal hernia treated by means of aspiration, operative measures being extremely risky. Fourth aspiration reduced swelling materially. Foot of bedstead elevated, combined measures proving successful. *J. Ward*, iii. C-158.

[Aspiration has been successfully employed in a considerable number of cases of strangulated hernia, but it should only be employed when operation has been refused. BULL AND COLEY, Assoc. Eds., iii. C-159.]

Infusion of half-pound of coffee to twelve cups of boiling water, eight cups being given at quarter-hour intervals and last four cups at half-hour intervals. Reduction must not be expected within four hours. If not tolerated by the stomach, can be given by rectal injection. *Guêrin*, iii. C-159.

Case in which spontaneous reduction followed the use of hot fomentations. *Debersaques*, iii. C-159.

HERPES ZOSTER.

PATHOGENESIS. In seven cases thought to be of malarial origin; in three plasmodium malariæ found. *J. MacFarland Winfield*, iv. A-27.

Case of herpes zoster with facial paralysis and another with sensory disturbances. Tendency of certain parts of the nervous system to herpes zoster may be due to predisposition of these parts to the special exciting causes. *Ebstein*, iv. A-28.

Case of herpes zoster of the left arm complicated with phenomena similar to those produced after lesions and cicatricial irritations of the radial nerve. *Kaposi*, iv. A-28.

Frequency of the occurrence of the disease after some cause producing mental depression or anger. Five illustrative cases. *Antony Roche*, iv. A-28.

First lesions to appear not always in regions nearest the nerve-centres, but occasionally at some remote point. *Cantrell*, iv. A-28.

Case attacking region of the auricle, accompanied by paralysis of auditory and facial nerves. *J. L. Gibson*. iv. A-29.

Cases of bilateral herpes zoster of the fifth pair. *C. E. Douglas*, *Geo. Carpenter*, iv. A-29.

Case affecting the frontal and dorsal regions simultaneously. *J. R. Bradford*, iv. A-29.

Case with long-persisting neuralgic pain and Bell's paralysis. *G. Van Someren*, iv. A-29.

TREATMENT. Local sedatives when the case is typical. Thick bandage over dusting-powder of amylum or amylum and opium, to reduce pain and keep the part dry. In hæmorrhagic form or where the vesicles closely set, affected parts must be carefully protected. ℞ Boric acid, 75 grains; glycerin, q. s. to make a solution. ℞ Simple ointment, 5 ounces; cocaine or extract of opium, 22 grains. When local treatment not sufficient, subcutaneous injections. In gangrenous form, arrest of destruction should be aimed at. Cases have been maltreated with iodoform and carbolic-acid dressings. *Kaposi*, iv. A-30.

HICCOUGH.

PATHOGENESIS. Fatal case from reflex hiccough due to scratch beneath mental foramen. *McCartie*, i. C-45, 46.

A reflex spasm of diaphragm with simultaneous closure of glottis, with pneumogastric as afferent and phrenic and recurrent laryngeal as efferent. *Leloir*, i. C-46.

Agency of phrenic questioned. Sympathetic connections of semilunar ganglion more probable. *Symes*, i. C-46.

Due to imposing symptoms, such as neurasthenia, dropsy, jaundice, etc. *Leonhardt*, i. C-47.

Case due to traumatism. *Parsons*, i. C-47.

TREATMENT. Massage most successful of measures tried. Nitrite of amyl. *McCartie*, i. C-47.

HICCOUGH (continued).

Cause to be ascertained and remedied; chloral hydrate. *Symes*, i. C-47.

Dry cupping of abdomen. An ordinary glass may be used. *Parker*, i. C-47, 48.

Energetic pressure of soft part of patient's thumb against the little finger of the same hand. *Pauzat*, i. C-48.

Hypodermic injection of morphia and atropia in sufficient dose to produce sleep. *Ferguson*, i. C-48.

Case in which a pungent snuff succeeded after failure of other means. Case of twelve days' standing. *Slevin*, i. C-48.

Apomorphine as antispasmodic. *E. Balm*, v. A-29.

HIP-JOINT DISEASE.

DIAGNOSIS. Classical position, flexion with abduction and rotation outward, often absent in beginning of coxalgia. Flexion with adduction and rotation inward quite frequent, and in relation to preponderance of lesions of cotyloid cavity and opening of ossifluent abscesses. *Vincent*, iii. G-34.

Flexion with adduction seldom observed. As to relation between this position and opened abscesses, numerous cases could be cited which contradict Vincent's theory. *Kirmisson*, iii. G-34, 35.

Imprint of foot indicates, in cases of coxalgia, atrophy and arrest of growth on the side on which hip diseased. *Vincent*, iii. G-35.

[A part of this atrophy should be attributed to disease irrespective of inflammation of the bones. The same atrophy is to be observed in club-foot and unilateral congenital dislocation of the hip where the weight has been kept off the leg by apparatus. R. H. Sayre, Assoc. Ed., iii. G-36.]

RESECTION. Results of resection far from brilliant. Mortality, according to Bruns, 40 per cent.; restoration of function never perfect, although same method wonderfully efficacious in other joints. Grosch in 166 cases found that resection, practiced at beginning of suppuration, was attended by no mortality. Hence, conservative measures in first stage. Surgical intervention as soon as pus forms. *Lambotte*, iii. G-36.

[In the United States perfect cures of hip-joint disease, after orthopædic treatment, have been reported in many instances by almost all the prominent orthopædic surgeons. R. H. Sayre, Assoc. Ed., iii. G-36.]

For abscesses, best course, free incision, thorough curetting while wound being flushed with boiled sterile water; complete closure of wound without drainage. *Taylor*, iii. G-37.

Injections of camphorated naphthol. Thirty-seven cases cured without fistulæ as results. *Ménard*, iii. G-37, 38.

Ischiatic crutch tried in twenty cases; served a very good purpose in two, enabling patients to walk about comfortably. Useful, but only in cases in which cure fairly well established, after subsidence of all reflex spasm. *Gibney*, iii. G-38.

Light carriage, when recumbent position unavoidable, to insure for patient fresh air and sunlight. *Bremmer*, iii. G-38, 39.

[The carriage is most useful as an adjuvant to rest, secured by confining the patient in a wire cuirass. Used by itself it makes it very inconvenient to carry the patient upstairs or in railroad-cars, etc. R. H. Sayre, Assoc. Ed., iii. G-39.]

Extension apparatus permitting early return to open air. *Liermann*, iii. G-39, 40.

Traction and immobilization hip-joint brace. A combination of long-traction hip-splint and Thomas splint. *McCurdy*, iii. G-40.

SUBSEQUENT DEFORMITIES. Nineteen cases of deformity following hip disease due to insufficient care during treatment. Tendency to adduction necessitates continuous resistance, even after disease cured; after lesion of joint healed, deformity may be produced if ankylosis not complete and patient walks too soon. Member should be kept immobilized in a good position a considerable time after recovery. *Petit*, iii. G-40, 41.

[When a diseased joint is cured it requires no protection. If it still has muscular spasm and if deformity and stiffness increase on exercise, the joint is not cured. The tendency is to abandon the use of apparatus too soon and to pronounce a case "cured" as soon as acute symptoms subside and the patient can be handled rather roughly without causing immediate pain. This is often on account of the involuntary protection which the patient's muscles afford the joint by preventing it from motion, and the "cure" is only beginning instead of being complete. R. H. Sayre, Assoc. Ed., iii. G-41.]

Prevention and correction of adduction obtainable by "symmetrical walking,"—*i.e.*, resting weight of body as long on one leg as on the other. Careful drill until it becomes a permanent habit. *Judson*, iii. G-41.

For treatment of resulting deformities, oblique subtrochanteric osteotomy. *Hoffa*, iii. G-41, 42.

PSEUDO-HIP-JOINT DISEASE. Two classes. First, some inflammation of bony structure, on bursa serosa near joint. Neoplasms of pelvis or upper extremity of femur. Various periarticular affections cause patient to assume vicious attitudes simulating coxalgia. Attentive study of minutest details necessary. When diagnosis doubtful, anæsthesia; if articulation healthy, passive motion causes no friction. Second, hysterical form. Usually

in women; occasionally in men. Any age; principally in youth. Sudden onset, from insignificant cause. Pain, muscular contractures, and vicious attitudes. Cutaneous hyperæsthesia. Superficial pain on pressure, deep-seated in coxo-tuberculosis; more pain caused by pinching than by deep pressure. Contractures. In coxo-tuberculosis overcome to a degree by patience; in hysterical form never possible. Prognosis, as a rule, favorable. *Duplay*, iii. G-42.

[This is true, but it is also true that tuberculosis of the hip-joint begins very frequently in the femur and does not involve the cartilage and synovial membrane of the joint until later. In these cases perfectly free motion of the hip can be obtained under complete anæsthesia and there is no friction in the joint. It would be a vital error, however, to treat such a case as not being hip-joint disease. By anæsthesia we abandon the aid of the involuntary muscular spasm, which is of prime importance in making an early diagnosis of a joint inflammation wherever situated, and on the promptness with which such inflammation is recognized and rest applied depends the chances for perfect recovery. R. H. Sayre, Assoc. Ed., iii. G-42.]

HODGKIN'S DISEASE.

See Lymphadenoma.

HORDEOLUM—STYE.

Essential distinction between ordinary hordeolum and so-called internal hordeolum; latter a subacute or chronic affection, situated totally within cilia, affecting ducts and glands of Meibomius, requiring incision and scraping. *Valude*, iv. B-45.

TREATMENT. Aristol, 5-per-cent. ointment rubbed into the edges of lids at night. *Heuse*, v. A-31.

HYDROA.

Two cases after exposure to sunlight; small, red spots became vesicular and pustular, black in the centre, and umbilicated; crusting and subsequent scarring. *Graham*, iv. A-30.

Cases of hydroa vacciniform. *Allan Jamieson, Juliano Moreira*, iv. A-31.

HYDROCELE.

TREATMENT. Evacuation of contents and injection of 30 minims of freshly prepared solution of equal parts carbolic acid and glycerin. *Kops*, iii. E-29.

Fluid drawn off sac washed with 5-per-cent. solution of carbolic acid. Trocar then pushed on through upper portion of sac and perforated drainage-tube passed through. *Buschke*, iii. E-29.

Puncture allowing about one-third of fluid to flow away, then injection of ¾ to 1 fluidrachm of 1 per-cent. solution of cocaine into effusion remaining. After five minutes serous fluid drawn off and tincture of iodine, pure or mixed with one-third water, injected, and whole evacuated after five minutes. *Nicaise*, iii. E-29.

Two- to three-per-cent. solution of antipyrin causes sufficient anæsthesia to render iodine injections painless; not toxic. *Pousson*, iii. E-29.

Three cases of hydrocele in the female. In one case tumor as large as head of fœtus extended along entire groin. Removed by operation. Recovery. *Reverdin and Buscarlet*, ii. F-100.

Operation always possible in the female even when volume is great or concomitant hernia. Complete extirpation with destruction of the canal of Nuck and of upper infundibulum, rational treatment. *Lapuyre*, ii. F-100, 101.

HYDROCEPHALUS.

ETIOLOGY AND PATHOLOGY. Clinical observation shows that symptoms of cerebral compression are independent of pressure of the cerebro-spinal fluid. *Reiner*, ii. A-36.

Case in which at autopsy brain weighed 150 grammes. Adipose tissue everywhere enormously developed. *Botescu*, ii. A-37.

Case of hydrocephalus with right hemiplegia and sarcoma of right parietal lobe. *Dinkler*, ii. A-37.

Two cases associated with complete absence of communication between fourth ventricle and subarachnoid space. *J. O'Carroll*, ii. A-37.

Distension does not explain all the lesions present,—*i.e.*, widening of the occipital foramen and the spinal canal. *Picqué and Fevrier*, iii. A-43, 44.

Two forms: congenital, in which only two spaces are filled with fluid, due to obstruction in flow of cerebro-spinal fluid; post-partum, arising first half-year of life and following syphilis, tuberculosis, and rickets. *Pott*, iii. A-44.

Fatal result of puncture in a case. *Romniciani*, iii. A-44.

TREATMENT. A mistake to resort to operation in this disease; practice should be abandoned. Only cases in which operation might prove successful are those which would also yield to medical treatment. *Bilhaut*, iii. A-44.

Puncture not a dangerous procedure if carried out antiseptically; indicated when hydrocephalus rapidly develops in previously healthy child. *Raczyski*, iii. A-44, 45.

Drainage easily performed. Case in which this measure employed; death in six weeks. *Stephen Paget*, iii. A-45.

Case of aspiration of lateral ventricles in which death from inanition took place a few weeks later. *Roswell Park*, iii. A-45.

Fatal case of aspiration of the lateral ventricles. *Still*, iii. A-45.

HYDROCYSTOMA.

Case of this recently-described disease. Discrete vesicles having a pearly look, like boiled sago-grains, varying from a pin-head to a barley-corn; spherical, except when two are so closely set that they seem to have coalesced. *James Adams*, iv. A-31.

Case in which cysts much more abundant on the right side than on the left. A typical case reported. *J. Hutchinson, Alex. Morton*, iv. A-31.

HYDRONEPHROSIS.

See KIDNEYS, DISEASES OF.

HYDROPHOBIA.

PATHOLOGY. In spinal cord of rabic animals acute inflammation, tending to destruction of nervous elements and hyperplasia of neuroglia. *Germano and Capobianco*, iii. M-10.

Rabic ptomaine chemically bears striking relation to snake-poison in certain respects, but differs in important particulars physiologically. *F. W. A. Fabricius*, iii. M-10.

To experimentally prove presence of rabies a mouse was injected with a few drops of solution of 2 cubic millimetres of spinal cord from suspected animal in 1 cubic centimetre of bouillon and placed in a cage communicating with a revolving wheel. When symptoms appeared the animal moved more slowly, missed bars, etc., and frequently halted. *Keirle*, iii. M-11.

SYMPTOMATOLOGY. A wound becomes very red and inflamed, though it may have completely healed after the bite, just before characteristic symptoms are about to appear. Almost livid, while skin and adjacent tissues retain their normal hue. *O. Wiley*, iii. M-11.

Convulsive closing of throat,—a respiratory spasm quite pathognomonic. Witnessed latter symptom as prominent feature in mortal case. *F. W. A. Fabricius*, iii. M-11.

Comparative absence of convulsive seizures in children. *Mayfield*, iii. M-12.

Case in which incubation period lasted sixteen months. *Orokhovatz*, iii. M-12.

Batal case from sheer exhaustion due to terror of hydrophobia after a dog-bite. *Grissim*, iii. M-12.

Similar symptoms brought on in same manner, ending in recovery. *Fabricius*, iii. M-12.

PROPHYLAXIS AND TREATMENT. Attenuation of virus by a process of peptic digestion. Activity of virus so far modified that considerable doses may be injected at a comparatively early stage of process; animals so injected withstand action of more virulent virus within comparatively short period. *Tizzoni and Centanni*, iii. M-12 to 14.

Experiment with spinal-cord emulsions heated to varying temperatures; virus destroyed when subjected to a temperature of 50° to 60°, destruction proceeded by marked attenuation. *Puscarin and Vesesco*, iii. M-14.

Statistics of Pasteur Institute. *Pottevin*, iii. M-14.

Statistics of Imperial Institute of Experimental Medicine at St. Petersburg. Mortality, 0.84 per cent. *Kraïouschkine*, iii. M-14.

Odessa Antirabic Institute. Mortality, 0.21 per cent. *Diatropow*, iii. M-14.

Antirabic Institute of Turin; average mortality from 1886 to 1894, inclusive, 0.95 per cent. *Uffreduzzi*, iii. M-14.

When a Soudan native is bitten by rabid dog, animal at once killed, liver removed, slightly browned before a fire, and eaten by patient. Similarity between this and Pasteur method. *Tonkin*, iii. M-14.

Similar custom in Northern China. Heart eaten instead of liver. *Shrubshally*, iii. M-14, 15.

HYDROSALPINX.

See OVARIES AND ADNEXA, DISEASES OF.

HYDROTHORAX.

See LUNGS, DISEASES OF.

HYMEN.

Hymen presenting two separate small apertures. Recent investigators have denied that cribriform hymen exists. *Purslow*, ii. F-88.

Case of double hymen,—first thick and fleshy, second closing vagina at posterior third; a crucial incision through both obstacles. *Oleninc*, ii. F-88.

In imperforate hymen with accumulation of fluids, laparotomy may be needed on account of rupture of Fallopian tubes. *Alexandroff*, ii. F-88.

HYPERMETROPIA.

See EYE.

HYPOPYON.

See EYE.

HYSTERECTOMY.

See VAGINA, DISEASES OF.

HYSTERIA.

PATHOLOGY. Epidemic of hysteria in a girls' school in England; fourteen cases varying between 11 and 14 years. *Crossley Wright*, ii. D-32.

Frequent co-existence of hysteria and cardiac affections; more frequent in men than in women, especially in those suffering from mitral stenosis, either alone or complicated with insufficiency. *Giraudeau*, ii. D-33.

In a psychological point of view, elementary disturbance in hysteria should be considered as a disaggregation of the mental elements. Psychical disorders not solely due to hysteria; they are also associated with degeneracy, with heredity for their common origin. All forms of insanity may be associated with hysteria. *Ballet*, ii. D-33.

Hysteria one of the forms of mental degen-

eracy. Clinically, individuality of hysteria should be preserved as much as possible from the other forms of mental degeneracy. The term "hysterical" should be applied only to manifestations that are clearly hysterical. *Joffroy*, ii. D-33.

In hysterical polyuria a fixed idea is the starting-point of a cortical reflex that inhibits the renal vasomotor centre, thus inducing vaso-dilatation and augmented blood-pressure in the renal vessels, with consequent hydruria. *Souques*, ii. D-34.

Case in which an application of a 10-per-cent. solution of cocaine to a sensitive tonsil caused pallor and loss of consciousness, heart weak and fluttering, pulse scarcely perceptible, right arm and leg found perfectly analgesic. *Burr*, ii. D-34.

SYMPTOMATOLOGY. Two cases in males of hysteria occasioned by malaria; former modifies symptoms of the latter and constitutes a form of malarial attack of pernicious appearance important to recognize. *Bidon*, ii. D-34, 35.

Two forms of hysterical contracture exist: 1. Concerns single parts and limited groups of muscles; may last for years without organic change in muscles, joints, or interstitial tissues; sudden cessation possible. 2. A form which attacks one limb after another until nearly all voluntary muscles, including those of the trunk, may be affected. These cases never get well abruptly. *S. Weir Mitchell*, ii. D-35.

The Lasègue symptom-complex: inability to originate movements of the anæsthetic side without the aid of sight, though they can be continued without this aid and even with only visual conceptions or touch-perception (*q.v.*). *S. Sandmann*, ii. D-35, 36.

Case in which patient voluntarily produced gangrene by repeated applications of an irritant green pigment. Majority of cases of so-called spontaneous hysterical gangrene simply instances of malingering. *Narath*, ii. D-36.

Condition of hysterical breast of much importance; has given rise to errors in diagnosis and needless removal of organ. Temporary enlargement with considerable hyperæsthesia of the skin, liable to become much more marked during menstrual flow. One or two tumor-like masses in the substance of the breast, which are not painful, hyperæsthesia being cutaneous. *Gilles de la Tourette*, ii. D-36, 37.

If hysteria treated by electricity, quantity of urine increases or becomes richer in extractive matters; prognosis always favorable. *Verkrogen*, v. B-6.

HYSTERIA IN THE MALE. In the male the disease usually presents itself in one of the milder forms, and contractions, vomiting, and hystero-epilepsy rarely occur; less frequently dependent on anæmia. Massage; Turkish baths; prolonged rest in bed not frequently of benefit. *Dandridge*, ii. D-37.

Case following slight injury; great constriction of visual fields, and color-fields reversed. *G. J. Preston*, ii. D-37.

DIAGNOSIS. Distinguishing trait not yet described; almost instantaneous shifting of the line of demarkation between the anæsthetic and normal. *Hugh T. Patrick*, ii. D-38.

"Hysteroclasic zone," regions which, when pressed upon, cause hysterical attacks to cease. Cardiac zone presents constant hysteroclasic powers; pressure over this region always arrests paroxysm. *Clozier*, ii. D-38.

Rhythmical borborygmi synchronously with respiratory movements; regular, lasting two to four hours; begin suddenly, cease when patient lies down. Antidyspeptic and antispasmodic remedies without avail; depend on spasmodic contraction of respiratory muscles. A variety of hysterical spasms. *Pitres*, ii. D-38.

Case of monocular diplopia; absence of any disorder of refraction. *F. Lagrange*, ii. D-38.

Various authorities upon castration as treatment of so-called uterine and ovarian hysteria consider operation not legitimate. Charcot, Pitres, and Pichevin hold that all such operations should be condemned in the strongest terms. Practice bad and immoral and should be abandoned. *Gilles de la Tourette*, ii. D-39.

ICHTHYOSIS HYSTRIX.

Exceptional case, in a child 4 years of age, in which the body and extremities were completely covered with veritable spines of horny growth. *Thornbury*, iv. A-31.

Case of infant, 14 months old, suffering from congenital ichthyosis. Finally developed bronchitis and died. *Cabot*, iv. A-32.

Case of congenital ichthyosis at birth. Spot the size of thumb-nail on the leg. From this lesion disease spread over the entire body. *J. W. Neptune*, iv. A-32.

Affection described of late years as acanthosis nigrans, akrokeratonie hereditarium, and papillary and pigmentary dystrophy is merely an abnormal manifestation of ichthyosis, while Darier's disease is incontestably removed from it by anatomical character of its lesions. *Max Joseph*, iv. A-32.

Three cases of ichthyosis in a family. *Jeanselme*, iv. A-32.

Attenuated form considered analogous to laminar exfoliation of the skin in the newborn. *Carini*, iv. A-32.

IDIOCY AND MICROCEPHALUS.

PATHOGENESIS. Comparative smallness and weakness of the heart general, and not the result of atrophy or degeneration following disease. Although blood-supply may

IDIOCY AND MICROCEPHALUS (continued).

be sufficient to nourish the brain, heart does not send enough for the development of the finer nerve-elements. *Wulff*, ii. D-30.

General disorders of nutrition, such as are observed in idiots and after early epileptic attacks, keep back the development of tangential fibres. *Klinke*, ii. D-30.

Careful examination into family history of 1044 idiots, showing 397 families, or 38 per cent., with history of insanity or imbecility, and 225, or about 21½ per cent., of various neuroses. Consanguinity has but little, if any, influence in the production of idiocy unless there be some hereditary neurosis. *Martin W. Barr*, ii. D-31.

PROGNOSIS AND TREATMENT. Cases of a high type not only acquire a respectable amount of knowledge, but are capable of being taught employments of various kinds and of making themselves useful. Cases of the cretinoid type can be ameliorated by treatment. *Fletcher Beach*, ii. D-32.

Examination of nine idiot skulls showing that deficiency in their development was not a leading feature and nothing to afford encouragement for operations calculated to facilitate growth of brain. *Humphrey*, iii. A-41.

Craniectomy justifiable in microcephaly with idiocy; success depends on degree of these. Acquired and late forms better prognosis than congenital. Gersung's method, followed by pedagogic treatment. *Beck*, iii. A-42.

Case showing that the cranium undergoes repair after extensive defects left in bone during operation. *Rie*, iii. A-42.

Eight cases of craniectomy. Results not remarkable as regards development. One death. *Piéchaud*, iii. A-42.

Case in which marked improvement followed craniectomy. *Spanbock*, iii. A-42.

Linear gap on right side warranted when improvement follows first operation. *Hudson*, iii. A-43.

Four successive operations in one single case; marked improvement following each procedure until child became normal. Main point is to avoid hyperpyrexia and shock, by only removing small pieces of bone at each sitting and avoiding damage to brain-substance. *Ord and Cotterell*, iii. A-43.

Premature synostosis may become an associated defect. *Shuttleworth*, iii. A-43.

Premature synostosis does not occur in idiocy. Arrested growth of skull due to arrest of growth of brain. Operative results slight, doubtful, or *nil*. *Barbour*, iii. A-43.

Any good arising from operation due as much to careful after-training as to operation proper. *Telford-Smith*, iii. A-44.

IMPETIGO HERPETIFORMIS.

Probably an acute or chronic infectious malady in which pregnancy, when existing, merely forms a predisposing cause. *Dauber*, iv. A-33.

Authentic case in a woman attacked for the first time at the end of her sixth pregnancy. Eruption in no way influenced by parturition and persisting throughout entire time of a seventh pregnancy. *Bernard Schultze*, iv. A-33.

Case of gangrenous impetigo with tuberculosis of the lungs. *Carpenter*, iv. A-33.

Simultaneous appearance of impetigo in several children of one family. In a series of fifty cases contagion probable in forty-two. *Drouet*, iv. A-33.

Several cases supporting the theory of contagiousness. May be the cause of several frequently fatal complications, among which are erysipelas and pneumonia. *Courgey*, iv. A-33.

[The infectiousness or, rather, the inoculability of impetigo is no longer doubted by dermatologists. Only the real nature of the pathogenic agent is still under discussion. L. Brocq, Assoc. Ed., iv. A-33.]

TREATMENT. The crusts once removed, the formation of new elements is to be prevented. Eruptive foci rubbed with a 1 in 1000 solution of corrosive sublimate. If carefully carried out during three or four days this is sufficient to prevent formation of new pustules. Ointment of oxide of zinc will terminate disease after a short time. *Unna*, iv. A-33, 34.

INEBRIETY. See Alcoholism.

INFLUENZA.

PATHOLOGY. Influenza microbe can easily be cultivated ; appears, in different stages of its growth, as a diplococcus, a bacillus, or a streptobacillus ; appears not only in the blood, but also in the various tissues. *Trouillet*, i. G-32.

Case of influenza-pneumonia, followed by unmistakable signs of abscess of the lung, in which Pfeiffer's bacillus was the only organism found in the sputum. *Hitzig*, i. G-33.

Influenza a specific nervous fever and, like cerebro-spinal fever, infectious. Backache, spinal ; headache, delirium, tinnitus, etc., due to implication of cranial nerves ; vomiting and diarrhœa probably reflex; complications mainly nervous. *H. Wait*, i. G-33.

Two fatal cases of influenza in subjects who had previously sustained a fracture of the skull, the influenza having set up an active process in the previously injured skulls. *P. P. Jennings*, i. G-33.

COMPLICATIONS. Three cases of influenza-pneumonia which progressed to gangrene. *Rhyner*, i. G-33.

Case in which a thrombosis of the left

cephalic vein developed, followed by considerable œdema of the arm, a thrombosis of the left thyroid vein, and finally by hæmorrhagic purpura. *Gruss*, i. G-33.

Thrombosis met with so frequently that there must be some intimate relation between the two. *Jas. F. Goodhart*, i. G-34.

In influenza, as in other infectious diseases, vascular occlusions may occur. Arterial thrombosis may have a quick and sudden onset, like arterial embolism. *J. B. Cathomas*, i. G-34.

Case in which acute inflammation of the right lobe of the thyroid followed an attack of influenza. *Galliard*, i. G-34.

Cases of acute bronchocele following influenza. *W. B. Russell, Smeaton and P. O. W. Browne*, i. G-34.

Eight cases showing that influenza may often be the source of degenerative changes in the kidney, which do not sometimes become apparent until influenza is forgotten. *C. Baumgarten*, i. G-34.

Renal complications ascribable to toxins, as after diphtheria and during typhoid fever. Usually recover in a few weeks or months, few becoming chronic. *A. Jacobi*, i. G-35.

Several cases of albuminuria in patients free from renal trouble before influenza. So-called healthy albuminuria becomes more serious after influenza, and casts appear in the urine. *James Tyson*, i. G-35.

Case in which hæmorrhages occurred with suppression of urine, and later an enormous amount of albumin. Anæmia supervened, followed by neuritis and death. *F. C. Shattuck*, i. G-35.

Case of cystitis, caused by influenza, characterized by pain in the lower part of the abdomen; painful micturition, hæmaturia at the end of the act on eighth day of the disease. Yielded readily to treatment. *Comby*, i. G-35.

Poison acts very often on kidneys. In simplest cases there is sometimes severe inflammation of glomeruli, with slight albuminuria, which lasts for several days, then disappears. In other cases it produces serious nephritis, which from the start exposes the patients to renal insufficiency and death from uræmia. *Lamargue*, i. G-35.

Aphasia observed in the course of influenzal pneumonia. *Paillas*, i. G-35.

Case of transitory aphasia following influenza. *Dargelo*, i. G-36.

Two cases of cerebral sclerosis following influenza. *Rendu*, i. G-36.

Case in which several weeks after influenza, when weather extremely severe, patient noticed paralysis of muscles supplied by facial nerve, first left side then right. Brother and father had had facial palsy. *W. J. Barkas*, i. G-36.

In post-influenzal meningitis no lesion whatever to be found at necropsy, either in brain or medulla. In rare cases, suppurating lesions of the brain and meninges found. *T. C. Maxime*, i. G-36.

Cases of cerebral meningitis following influenza. *D. L. Davies, D. C. Black, T. H. Moorhead, R. H. Fox and A. W. Tabuteau*, i. G-37.

Female generative organs. Of 17 in the first to fifth month of pregnancy, abortion occurred in 15. Among 138 non-pregnant women, all but 3 had either menorrhagia or metrorrhagia, or an already existing local disease was made worse. *Müller*, i. G-37.

Diagnosis of influenza during puerperal state. Marked and repeated chills; severe pain in the head, body, and extremities; gastric and pulmonary disturbances. Pain and soreness sufficiently characteristic to establish the differential diagnosis between it and puerperal fever. *T. M. Burns*, i. G-37.

Complications in fascias, principally in plantar, which becomes thickened and sensitive to pressure and render standing and walking painful. Another manifestation described by Albert: insertion of tendo Achillis becomes the seat of periostitis, without definite history of injury or traumatism. More liable to be found after second attack. *Fränke*, i. G-38.

TREATMENT. Peculiarities of bronchopneumonias of influenza in children: (1) slight elevations of temperature seem to point to paralysis of thermogenic centres; (2) early tendency to bronchoplegia and pulmonary collapse due to depression of vital powers; (3) extraordinary slowness of course of disease. *Ferreira*, i. G-38.

Antiseptic treatment to nose, mouth, and pharynx important. Boric-acid gargle. Boric vaselin to nasal cavities, and great care of the mouth. *Plicque*, i. G-39.

Cinnamon in fifty cases; 1-drachm doses of the tincture three times a day. Thirty benefited; pains in the head and back relieved after three or four doses. *H. A. Stonham*, i. G-39.

Protests against reckless use of such drugs as salicin and antipyrin; relieve immediate symptoms, but tedious convalescence and cardiac debility encouraged. Quinine the true antitoxic in influenza. *Burney Yeo*, i. G-39.

Quinine not completely excreted from tissues for some days; 3 to 5 grains in an effervescing saline draught every three or four hours controls the course of the disease. Large doses unnecessary; they produce marked cardiac depression, particularly in elderly people. *Marsh*, i. G-39.

Diminished mortality and shortened period of convalescence of recent epidemics due to the fact that antipyrin and similar depressants are being withheld. *Grant*, i. G-40.

INFLUENZA (continued).

Quinine as a prophylactic and abortive in large doses; in serious secondary infections subcutaneous injections. Microbe of influenza cannot live in an organism impregnated with quinine. *Mossé*, i. G-40.

Concurrence with Burney Yeo and Moffatt, but patient should be alleviated by active measures. To do this and lower the temperature, 4- to 6-grain hourly doses (in cachets) of phenacetin valuable. Two more cachets at intervals of four hours, if necessary. *J. H. Barnard*, i. G-40.

Salicylate of soda, 2 or 3 grains every three hours to older children. Maltine with coca-wine for neurasthenic conditions. *W. L. Stowell*, i. G-40.

Twenty cases attended with neuralgic pains greatly ameliorated by 15 to 30 grains of salophen. Recovery within two days. Salophen embodies advantages of salicylate of soda without possessing its disadvantages. *Claus*, i. G-40.

Of all antineuralgic remedies tried, salophen proved the most useful. Separates into salicylate of soda and acetyl-paramidophenol in alkaline contents of the small intestine; odorless and tasteless. *Hennig*, i. G-40.

Asaprol in doses of 1 to 1½ drachms in powder or in aqueous solution. *Lewin*, v. A-35.

Convalescence following influenza: Glycerophosphates of lime, iron, sodium, magnesium, and potassium, either by subcutaneous injection or by the mouth. (See GLYCEROPHOSPHATES, section A, this volume.) *Albert Robin*, v. A-79.

Convalescence following influenza: Glycerophosphate of lime in form of wine, syrup, or capsules; remarkable results. *Lafage*, v. 80, 81.

PROPHYLAXIS. Quinine an almost unexceptionable preventive; 5 grains immediately after breakfast during prevalence of epidemic. *Sinclair Coghill*, i. G-41.

Quinine given at proper time and in large enough doses will prevent an outbreak of the disease. Given to one of five squadrons of cavalry, 7½ grains daily. Only 7 men in squadron contracted influenza; in other four squadrons 22, 19, 32, and 42 cases, respectively, suffered. *Graeser*, i. G-41.

Rabbits inoculated with blood of influenza patients, pure cultures of microbe, and with blood and cultures obtained from inoculated animals, and then with solution of quinine. Results showing controlling action of quinine. *Mossé*, i. G-41.

A daily dose of 1 grain of sulphide of calcium. *W. E. Green*, i. G-41.

INGROWING NAIL.

Case of ingrowing toe-nail at birth, growth inward continuing. Case of a paraplegiac, in bed over a year, in which nail began to grow in during this time. *Root*, iii. G-69, 70.

Two factors in ingrowing toe-nail,—traumatism and microbial infection from dirt. Readily caused by prolonged baths in carbolic-acid solution and antiseptic dressings. *Regnault*, iii. G-70.

Generally caused by small and often unnoticed lesions produced when patient cuts and treats his nails, which become infected. *C. Bloch*, iii. G-70.

[Pressure of the toes against each other will cause a corn under the edge of the nail, where it presses against the epidermis, which is intolerably painful and is quite independent of the feet being clean or dirty. If the patient injure the skin in his efforts to relieve the pain and also has dirty feet, the toe will undoubtedly be much worse; the bad ingrowing toe-nails we meet are the result of this and of neglect, but they all begin as slight affairs, and dirt plays only a secondary part in their production. R. H. SAYRE, Assoc. Ed., iii. G-70.]

Modification of Quénu's method, displacing lateral incisions, lowering them at posterior extremity, and cutting autoplastic flap within outward. *Dardignac*, iii. G-70, 71.

INSANITY.

[The work of Andriezen and Berkley, abstracted below, has done much to clarify our knowledge of the minute anatomy and pathological histology of the brain. While much is still indefinite and vague, clearer vistas are opening up, and we may hope, with modern methods of research, to explain, in the near future, many of the complex problems of psychical activity, both in health and in disease. GEO. H. ROHÉ, Assoc. Ed., ii. D-1.]

Doctrine of the neuron and interrelation of neurons within central nervous system a foundation for possibilities in nerve-activity. Cortical areas are themselves complex structures, yet in each cluster the individual neuron preserves not only its integrity as distinct from other neurons, but also its threefold character as a nutritive and dynamic doubly-connected apparatus. The human brain shows four layers: (1) the molecular layer; (2) the ambiguous layer; (3) long pyramidal layer; (4) mixed pyramidal or polymorphic layer, including Meynert's layer, *plus* spindle layers. Alteration and destruction of fine naked collaterals and nerve-terminals shown to exist in molecular layer and swelling and softening of minute protoplasm granules attached to special processes in the superficial layer of the cortex. *Lloyd, Andriezen*, ii. D-1 to 5.

Above changes explain diminished sensitiveness of alcoholic subject to impressions

from without, and also general loss of memory and lack of association of ideas. Results sufficient where cause definitely known; but microscopical examination cannot give us all the information we desire when initial cause not known. Conviction steadily growing that actual agents which produce tissue changes are chemico-toxic, absorbed or ingested, produced by altered tissue metabolism or elaborated by bacteria. *Dercum*, ii. D-5, 6.

Possibility of there being no non-medullated nerve-fibres in the cerebral cortex. Naked axis-cylinders ought to be a physiological impossibility in cerebrum, their presence could only give rise to irregular overflow of energy with corresponding confusion. It is probably through protoplasmic processes in lateral buds or gemmules that axons influence protoplasm of dendrons and cells. Their uncovered endings coming into close contiguity with gemmules. Gemmules specially liable to injury from toxic or morbid influences are the first portions of the neuron to atrophy and disappear in certain diseases. *H. J. Berkley*, ii. D-6.

Wasting of the fibres with axis-cylinders in the gray substance of general paralytics (confirming the previous observations of Tuczet). Delicate fibres in middle layer of gray matter first to disappear. *A. Meyer*, ii. D-6.

Wide-spread degeneration of arterial system, commonly found in the insane, plays a very important part in the pathogenesis of mental aberration. *Beadles*, ii. D-7.

Examination of fourteen cases with reference to leucocytes. In cases of senile dementia, increase; in general paralysis, marked decrease; in cases with tendency to maniacal excitement, great increase. *Burton*, ii. D-7.

In clearly established cases of insanity, considerable increase in the average frequency of the pulse, both among men and among women. Average from 2172 cases, 84.8 in women and 80.8 in men. Abnormal tracings found at some stage of the disease in vast majority of cases. *Th. H. Kellogg*, ii. D-7.

Specific infection must be included among causes of mental symptoms. Analogies with nervous affections, known to be of microbic origin, favor view that insanities with similar or related phenomena or lesions are also microbic in origin. Mental disorders of pregnancy and puerperal state probably in a considerable portion of cases toxæmic. *C. K. Mills*, ii. D-8.

All manias of an acute type which are not intoxication neuroses, and are not due to the presence of organisms in the blood, divisible into mania proper, confusional insanity. *H. C. Wood*, ii. D-8.

Infectious origin of delirium acutum shown in eight cases, in seven cases of which recovery or considerable improvement took place, eighth ending fatally. In latter only did the blood reveal presence of bacilli described in previous article to be characteristic of delirium bacillare. *Bianchi and Piccino*, ii. D-8.

HEREDITY AND STIGMATA. Physical characteristics transmitted by inheritance. Mental receptivity transmissible. Idiocy and imbecility may be a defect, having an origin in consanguineous marriages, prenatal conditions, accidents, arrested development, infantile meningitis, tuberculosis, lack of potency on part of one of the parents from unexplained causes. *Chapin*, ii. D-9.

Morbid types not transmitted in psychopathic families in identical forms. Suicidal insanity only transmitted to descendants. Sexual abuses, alcoholism, etc., concomitant causes aggravating heredity. Maternal heredity propagated to greater number of descendants. Psychopathic families doomed to extinction by great mortality and sterility of marriages. *Perugia*, ii. D-9.

Special type marked by precocious dementia, patients exhibiting signs of degeneration at age of 17 to 20. *Malschin*, ii. D-10.

Absence of overlapping of the anterior portion of the upper dental arcades over the lower as a stigma of degeneration. *Camuset*, ii. D-10.

Careful observation teaches that there is no relation between physical and moral deformities. Individuals who from a moral point of view are depraved may be regular physically and *vice versâ*. *Legrain*, ii. D-11.

A type of criminal man or of the insane man or epileptic or neurotic man not yet discovered. Such a man bears marks showing simply that he belongs to a somewhat handicapped family. All modern studies seem to show that man must be more than ever careful of his education, his training and surroundings, using all possible moral and spiritual agencies to overcome his defects and make more stable his powers. *Ch. Dana*, ii. D-11, 12.

INSANITY AND OTHER DISEASES. [One of the most encouraging signs of progress in psychiatry is the increased attention devoted to the relation of somatic diseases to mental disturbances. The following abstracts show that alienists are devoting much consideration to these relations. The observations of Bondurant and Auerbach seem to point decidedly to the conclusion that kidney disease is, in many instances, causative of mental disturbance. Geo. H. Rohé, Assoc. Ed., ii. D-12.]

Comparatively rare occurrence for actual insanity to develop during course of bodily disease. When cause not continuous,—such as poisons, fevers, and traumata,—mental

INSANITY (continued).
symptoms, in the great majority of cases, disappear; in heart disease and phthisis they may disappear and re-appear from time to time; in some cases, such as insanity connected with gouty kidney, they only disappear with death. *Reynolds*, ii. D-12, 13.

HEPATIC SYSTEM. Injury to the liver from alcohol may have its effect in causing mental disease, due to fact that hepatic cell has lost its normal antitoxic power. *Klippel*, ii. D-13.

URINARY SYSTEM. In 1700 cases albumin with renal tube-casts detected in urine of more than one-half of cases of chronic insanity; 25 per cent. present clinical evidences sufficient to enable any competent practitioner to make a diagnosis of kidney disease. In 75 per cent. of 200 cases kidneys examined post-mortem showed pathological changes. *Bondurant*, ii. D-13.

Satisfactory clinical observations, together with post-mortem findings, clearly demonstrate occurrence of pronounced insanity as a result of all forms of kidney inflammation as well as other renal disorders. In great majority of these cases mental disorder to be attributed to uræmic intoxication. No special form of insanity from renal disease, though the different forms of melancholia are those most frequently observed. *Auerbach*, ii. D-14.

Of 150 post-mortem examinations in insanity, 106 cases of chronic renal disease, or 70.6 per cent. *Beadles*, ii. D-14.

Of 154 post-mortem cases, 74 of renal disease, or 48 per cent. *C. H. Bond*, ii. D-14.

Of 532 post-mortems 327 cases of chronic renal disease, or 61.466 per cent. *Bristowe*, ii. D-14.

GENITAL APPARATUS. Of 99 cases of chronic insanity, periods, on the whole, regular; when irregularity occurred patient generally over 35. Climacteric appeared, on the whole, earlier. Menstruation had influence almost certainly in 16 or 18 cases, questionably in 18. Erotism rare. Menstrual period seems to exert actual influence, principally when pain arising from some genital trouble reacts on the system. *Naecke*, ii. D-15.

Table of 100 cases showing truth of Morel's statement that, although the brain is always the seat of insanity, it is not always the seat of its cause. In 17 cases distinct post-climacteric atrophy; 9, enlarged uterine cavities; 12, enlarged cervices; 43, erosions of varying degrees of severity; 7, lacerated cervices; 17, retroversion; 3 anteversion; 7, lateroversion, etc. *Clara Barrus*, ii. D-15, 16.

BASEDOW'S DISEASE. A very definite form of mental change in nineteen cases, characterized by extreme motor restlessness, extreme insomnia, and occasional sensorial illusions of sight or hearing. *A. Maude*, ii. D-16.

RAYNAUD'S DISEASE. Co-existence of Raynaud's disease with insanity; occurs in hebephrenial stupor, in stuporous insanity, melancholia, attonita, katatonia, and in certain cases of paretic dementia. *Kiernan*, ii. D-16.

GENERAL VISCERAL DISEASES. Of 169 cases, 87 suffered at one time or another from referred pain associated with superficial tenderness. Mental disturbance seemed to stand in direct relation to intensity of pain. Depression seemed to be associated mainly with the presence of areas over lower part of chest and over abdomen. Hallucinations only present where scalp tenderness is a marked feature of the sensory disturbance. *Henry Head*, ii. D-17.

PARANOIA. Case in the right hemisphere; region of the post-central furrow; very broken arrangement of gyri of parietal region; unusual development of third frontal convolution; considerably at variance with usual types of convolutional development. *Henry J. Berkley*, ii. D-29.

Four cases of chronic paranoia, showing degeneration of posterior cords of spinal marrow. Alterations of spinal cord in relation with psychical troubles of paranoia. *Bernhard Feist*, ii. D-29.

Case of systematic delirium of grandeur without noticeable lowering of the intellect. *G. Baltet and Arnaud*, ii. D-29.

Case of periodical paranoia. Belongs to psychoses of the degenerated; seldom lead to dementia. *Ushenko*, ii. D-29, 30.

While harmless lunatics are kept in confinement, dangerous paranoiacs are allowed their liberty. The paranoiac should be sequestrated. *C. B. Burr*, ii. D-30.

GENERAL TREATMENT OF INSANITY.

CASTRATION. Out of 300 castrations, in 200 cases operation had a beneficial effect; in 100 it was doubtful or unfavorable. In 2 personal cases, both said to be cured, same results could have been reached without mutilation. *Kraemer*, ii. D-41.

SUGGESTION. Curiously rapid and satisfactory action of hypnotic suggestion in dispelling delirium and hallucinations in the insane. Very frequently hypnosis an impossibility. Partial anæsthesia by small doses of chloroform. *Voisin*, ii. D-42.

THYROID FEEDING. Cell-nutrition undoubtedly affected in a striking manner by thyroid feeding; increased metabolism occurs as result of quickened circulation. Autotoxic process interfered with. *C. K. Clarke*, ii. D-42.

In twenty-five cases internal administration of thyroid induced true febrile process; resulting action beneficial. Specially useful in insanity of adolescent, climacteric, and puerperal periods, and frequently so in cases

where recovery is protracted and tendency is to drift into dementia. *Bruce*, ii. D-42.

DUBOISINE. Neutral duboisine sulphate an excellent sedative in all psychical and motor agitation. Sleep produced similar to physiological slumber. Dose varies from $\frac{1}{130}$ to $\frac{1}{40}$ grain. *Loicano and Masuro*, ii. D-42, 43.

CHLOROBROM. Chlorobrom—a mixture of equal parts of potassium bromide and chloralamid dissolved in water—has less action upon the heart and blood-vessels than chloral. Not particularly disagreeable to take; leaves no ill after-effects. *Wade*, ii. D-43.

Highly recommended in melancholia and brain exhaustion from overwork, when insomnia is the most serious symptom to combat. *Keay*, ii. D-44.

In a case of acute mania chlorobrom took longer to act, but was effectual in producing long and refreshing sleep. *Wade*, v. A-55.

SULPHONAL. Administered to forty-one insane females. Disagreeable effects frequently observed: frequent spitting, uneasiness, vomiting, staggering gait, and sometimes diarrhœa. If sulphonal discontinued, patients, without exception, recover completely. Should never be given in daily doses of 30 to 45 grains more then several months without discontinuing it from time to time. *Schedtler*, ii. D-44.

TRIONAL. In comparing trional with sulphonal, preference given to the former as an hypnotic. *Steiner*, ii. D-43.

Unusual toxic effect of trional in case of insomnia when renewed small doses administered. *J. W. Irwin*, ii. D-43.

MISCELLANEOUS MEASURES. Bromoform in acute maniacal states, 15 drops a day, divided into hourly doses; increase of 5 drops daily until 20 to 50 drops given per day. Sedative action always prompt and decisive. *Ponticaccia*, ii. D-45.

In mania, chloralose, in doses of from $1\frac{3}{4}$ to $15\frac{1}{2}$ grains; preferably given in solution in boiling water. Sedative effect in from 15 to 20 minutes after taking the drug. *Haskovec*, v. A-53.

Artificially causing abscesses by subcutaneous injection of turpentine. Of benefit in various forms of insanity. *Albertotti*, ii. D-45.

Special and elective action of potassium bromide on the bulbar region, with elective action of opiates and chloral on cerebral lobes. Following mixture recommended: ℞ Potassium bromide, 2 drachms; chloral hydrate, $\frac{1}{2}$ drachm; syrup of morphine, 1 ounce (French Codex, $\frac{1}{6}$ grain to the ounce); distilled water, $3\frac{1}{2}$ ounces. *Luys*, ii. D-45.

Multiplication of hypnotics, encouraged by physicians of late, to be deplored. *E. N. Brush*, ii. D-45.

When administering sodium phosphate with ergot, most convenient form is the powder, in daily doses of 4 grains each of the drugs. *Luton*, v. A-70.

SURGICAL TREATMENT OF INSANITY. Trephining cannot as yet be reckoned among methods of treatment. Excision of parts of cortex seems altogether unacceptable. *Semelaigne*, iii. A-45.

Case of insanity and epilepsy nineteen years after causative injury. Trephining followed by complete recovery. *Binet and Rabatel*, iii. A-45, 46.

Certain forms of hysteria may simulate Jacksonian epilepsy. Case in which unilateral epilepsy was cured by trephining on opposite side. *Lépine*, iii. A-46.

Insanity due to injuries of head of rather infrequent occurrence. Two cases in which cure followed trephining. *Cale*, iii. A-46.

INSOLATION.

See Heat-Stroke.

INSOMNIA.

Chloralose somewhat less certain than trional. Acts more rapidly, but sleep less prolonged. *Khmielefski*, v. A-53.

Chlorobrom highly recommended in melancholia and brain exhaustion from overwork, when insomnia is the most serious symptom to combat. *Keay*, ii. D-44.

Trional in $15\frac{1}{2}$- to 31-grain doses. Average duration of sleep about seven hours; comes on from three-fourths of an hour to an hour after administration of the drug; sleep quiet and easily interrupted, but quickly renewed. Especially successful in insomnia due to pain. *Boudeau*, v. A-156.

Trional in sucklings is prompt, sure, and harmless. Valuable also in insomnia common in the first stages of the exanthemata, measles, small-pox, scarlatina, in small doses (3 to 4 grains) before bed-time. *Moncorvo*, v. A-157.

Trional contra-indicated in insomnia of organic nervous disease, such as meningitis. Especially useful in chorea, convulsions, and night-terrors. *Claus*, v. A-157.

Trional useful in insomnia of dyspeptics, overtaxed school-girls, and others. No unpleasant results or tendency follow the continued use of the drug. Useful in all diseases in which an hypnotic is indicated. *M. A. Clark*, v. A-157, 158.

Trional preferable to its congener, sulphonal; acts more promptly. If, when taken two evenings in succession, it does not produce a slight effect, useless to continue it. Should be stopped at the end of five or six days. *Vogt*, v. A-158.

Trional in every sense an hypnotic. Has no action on the pulse, respiration, reflexes. Mental patients take it well in honey, $15\frac{1}{2}$ grains. *Venanzio*, v. A-158.

Trional may be given in unleavened bread to avoid disagreeable taste of the drug, which besides is only soluble in a large

INSOMNIA (continued).
quantity of hot water. *L. Galliard*, v. A-159.

During administration of trional bicarbonate of sodium should be given if urine become cloudy. *Goldmann*, v. A-159.

Case of trional poisoning. Patient had taken the drug over three months with few interruptions. Headache, vertigo, epigastric pains, anuria; recovery. *Reinicke*, v. A-160.

Warm bath very efficient. *Eccles*, v. A-181.

Hot baths of the extremities productive of sleep and act favorably on congestive phenomena, cerebral or cardiac. *Leredde*, v. A-181.

According to Nicholas, the warm douche produces greater pulmonary expansion than massage does alone, but combination of the two methods is still more effectual. *Graham*, v. A-181.

INTESTINAL OBSTRUCTION.

Case of multiple strictures of the small intestine. *Goldenbaum*, i. D-51.

Internal strangulation by Meckel's diverticulum with intestinal perforation. *Mérinescu and Bobulesco*, i. D-51, 52.

Case of cæcal obstruction diagnosed during life as appendicitis. *Lysander*, i. D-52.

In intestinal obstruction walls of intestine allow the coli bacillus to pass readily. *Multanowski*, i. D-52.

Death from broncho-pneumonia due to coli bacillus in case of multiple obstruction. *Lemonnié*, i. D-52.

Cicatricial stenosis due to general miliary tuberculosis. *Cheney*, i. D-53.

FOREIGN BODIES. Death from intestinal impaction by undigested wheat. *Somers*, i. D-52.

Fatal occlusion due to adherence of a diverticulum to base of mesentery. *Braquehaye*, i. D-52, 53.

Cases in which pointed metallic bodies were swallowed and voided without accident. *Tily*, *Reverdin*, *Fourneaux*, i. D-55.

ENTEROLITH. Case of enterolith simulating hepatic colic. *Wylie*, i. D-55.

Case in which severe colicky pain occurred as prominent symptom. *W. C. Phelps*, i. D-55.

Case in which a sebaceous concretion was expelled through a periumbilical phlegmon. *Marais*, i. D-55.

Case in which fifteen intestinal calculi were removed by rectal irrigation. *Mörner*, i. D-55.

GALL-STONE OBSTRUCTION. Cases due to impacted gall-stones. *Schüle*, *J. W. Smith*, i. D-53. *D. E. Walker*, *Wylie*, *Kinnear*, iii. C-49.

When diagnosis possible, expectant treatment. After opening abdomen calculus should, if possible, be forced through ileocæcal valve. If immovable, stone should be excised. Only one case out of twenty-seven require resection of intestine. *Eve*, iii. C-53.

Early intervention; death occurs more frequently than is supposed from gall-stone obstruction. *McGrau*, iii. C-53, 54.

INTUSSUSCEPTION.

ETIOLOGY. In 64 cases in children, 46 boys; youngest, 49 days; oldest, 8 years; 46 under 1 year; trouble occurring most frequently from third to ninth month. *Hirschsprung*, iii. C-42.

Sodium bicarbonate causes contraction of the circular fibres of the intestine. Peristalsis continuing, invagination produced, thus showing one class of intussusception. Post-mortem from the reverse,—*i.e.*, paralysis of circular fibres. *R. T. Morris*, i. D-53.

Case in which enemata led to rupture of ulcer of transverse colon. *Barnard*, i. D-53.

TREATMENT. Acute case in female infant. Recovery attributed to early performance of abdominal section without previous attempts at inflation or injection. Inflation should be discarded; injection should be reserved for earliest cases; operation should be performed in all cases of twenty-four or more hours' duration. *Roughton*, iii. C-42, 43.

Air or fluid injections should be carefully tried before abdominal section when the symptoms have been in existence less than forty-eight hours. *London Lancet*, iii. C-43.

List of sixteen successful cases, patients being under 2 years of age—the period when fatal results are most to be feared,—to indicate the value of operative measures. *Roughton*, iii. C-43.

Successful case in infant of 4 months operated twelve hours after obstruction. *Anderson*, iii. C-44.

In 6 cases—4 in infants and 2 in adults—3 treated by abdominal section recovered, while 3 treated by non-operated means died. Small median incision, evisceration, reduction by pressure on apex of intussusception, the intussuscipiens being drawn in opposite direction, forcing contents of ileum into colon before returning intestines into the abdomen. *Howitt*, iii. C-44.

Study of eighty-four cases. Operation should be resorted to as soon as non-operative measures have been thoroughly tried without success. After laparotomy, disinvagination before all other methods. When disinvagination impossible, resection of invaginatum. *Rydygier*, iii. C-45.

When invagination short and easily brought out through incision, Barker's operation preferred; but when invagination extensive, operation has dangers. Modification proposed. *Paul*, iii. C-45 to 47.

Additional successful cases in children

operated for intussusception. *J. Crawford Renton, J. Bion Bogart*, iii. C-47.

Operation in child of 5½ months for double intussusception; death from shock six hours later. *Carless*, iii. C-47.

Case followed by spontaneous recovery; death two months later from inanition. *Koehler*, iii. C-47.

VOLVULUS.

ETIOLOGY. Three causes of occlusion present in one case,—a twist, knot, and band,—the whole occupying a portion of the ileum; recovery. *Bérard*, iii. C-47, 48.

Case due to band resulting from cured tuberculosis, complicated by a beginning lymphosarcoma. *Ullmann*, iii. C-48.

Case produced by a band formed by an abnormally-attached vermiform appendix. *Mayo Robson*, iii. C-48.

Case of the same kind,—vermiform appendix wound around a loop of the ileum. *Murray*, iii. C-48.

Case in which sigmoid flexure was as large as entire colon and twisted upon itself. *Pillard*, iii. C-48, 49.

Purely mechanical twist may give rise to symptoms without paralysis of twisted portion. Pseudostrangulation may supervene after reposition of gangrenous loop and peritoneal infection follow. Great prostration and high pulse indication of latter. *Nicolaysen*, i. D-53, 54.

TREATMENT. Case in which all symptoms of acute form disappeared upon removal of fish-bone from the anus. *Grundzach*, i. D-54.

Volvulus reducible in proportion with degree of dilatation; difficulties may be increased by bends in colon. Reposition impossible unless gas above the point of obstruction be removed. *Prioleau*, i. D-54.

Belladonna and opium in full doses until constitutional effects shown, for peristaltic paralysis due to tympanites or fæcal accumulation. May be combined with calomel. Sodium sulphate in hourly doses of 1 or 2 drachms. Lavage-tube for bowel-flushing. *Thornley Stoker*, i. D-54.

If absolute strangulation by bands, etc., knife only chance. *Althaus*, i. D-54, 55.

Injections of salt water into which constant current with positive pole introduced, and negative pole upon abdomen. *Althaus*, i. D-55.

Inversion, taxis, and large enemata unless strong contra-indications. *Sargent*, i. D-55.

When laparotomy fails, generally due to one of the following causes: (1) delayed interference; (2) pathological condition irremediable from the first; (3) inability to discover the lesion. *P. Rhys Griffith*, iii. C-49.

[Nothing is said about the contra-indications to laparotomy after the stages of established peritonitis. There are undoubtedly certain cases where the peritonitis has become so general and the patient's condition so grave that operation can offer no chances of success, and will only hasten death. BULL AND COLEY, Assoc. Eds., iii. C-50.]

Degree of interference possible without producing paralysis of ileum depends upon position of ligature. When excision necessary, a little more of the gut on the convex side should be removed than on mesenteric side to avoid necrosis. *Murphy*, iii. C-50, 51.

Volvulus of sigmoid flexure usually ascribed to retraction of mesocolon on a level with its parietal insertion. To avoid renewal, mesocolon to be solidly sutured to abdominal wall. *Roux*, iii. C-50.

Case of successful operation in a man of 84 years. Intestinal drainage, as an accessory to operation, scarcely inferior to the removal of the cause of obstruction. *Smith and Fleming*, iii. C-50, 51.

[We do not believe that intestinal drainage is as important as the writer would have us think. It is an additional detail which must prolong an operation in which time is of the greatest importance. In our opinion, the sigmoid flexure can be drained with greater ease and safety by the rectal tube. BULL AND COLEY, Assoc. Eds., iii. C-51.]

A successful result in an operated case ascribed to an already damaged peritoneum. Large doses of sulphate of magnesia and refusal of opium. *Fell*, iii. C-51.

Six cases demonstrating hopeless nature of intestinal obstruction unless treated by early laparotomy. Practice of masking abdominal condition by opium far too prevalent. *Cartledge*, iii. C-51, 52.

Importance of relieving acute symptoms by establishment of stercoral fistula. *Kummer*, iii. C-52.

Medical treatment rarely successful, exhausts the patient, wastes valuable time, and occasionally ruptures intestine. Laparotomy should under no circumstances be delayed after appearance of coffee-ground vomiting. *Barton*, iii. C-52.

Best means for reaching site of constriction is to observe most dilated portion of bowel which presents at the wound and to follow it in the direction of increasing distension and congestion to the stricture. *W. Thomson*, iii. C-52.

Ordinary red-rubber tube one-half to five-eighths inch in diameter, as used for washing out stomach, for the injection of large quantities of warm water in divided doses, using a large funnel. *Stoker*, iii. C-52, 53.

INTESTINAL PARASITES.

For the examination of fæces: A small quantity is transferred with a glass rod to the object-glass and diluted with 10-per-cent. solution of common salt, cover-glass

INTESTINAL PARASITES (contd.). being superposed. If microscopical examination not immediate, transfer of specimen is made to a thin sheet of mica. When dry, mica sheets wrapped in wax- or parchment-paper and placed in envelope with patient's name, etc. Can be kept for years. *Iakimovitch*, i. D-67, 68.

ANCHYLOSTOMA DUODENALE. Found, post-mortem, in 26 of 50 cases in Madras, India, but disease due to this parasite rare. *Williams*, i. D-73, 74.

Cases in which anæmia was the prominent symptom. *Tinozzi*, i. D-74.

Average percentage of iron in liver much less than average percentage in pernicious anæmia. *Beaven Rake*, i. D-74.

TREATMENT. Thymol rapidly successful. Milk diet day before, and powdered senna, ½ drachm; calomel, 7½ grains. Divided into nine wafers; 1 every two hours. Liquid stools produced, removing parasite and eggs. If delayed, castor-oil, 1 ounce. If, after few days, fæcal matter still contain eggs, treatment to be renewed, when traces of parasite always disappear. *Britto*, i. D-74.

ASCARIDS LUMBRICOIDES (ROUND-WORM). Case in which they induced pseudo-epilepsy. *Koneff, Chevelev*, i. D-68.

Case in which an abscess in Douglas's pouch was found to contain an ascarid. *Koch*, i. D-68.

Cases in which ascarids had penetrated the liver. *Krasnobaïeff, Fuad*, i. D-68.

Case simulating umbilical hernia. *Löwy*, i. D-68.

Cases of intestinal obstruction and hydatids erroneously taken for disorders due to ascarids. *Read*, i. D-69.

Large ascarid found in vermiform appendix. *Wolff*, i. D-69.

Mortal occlusion of ductus choledochus by ascarids. *Blumenau, Marchiafava*, i. D-69.

Membranous enteritis associated with ascarids. *Snow*, i. D-70.

DISTOMA. Spasmodic cough and hæmoptysis due to presence in lung of living distoma. *De Gouvea*, i. D-74, 75.

Serious pulmonary symptoms from Senegal parasite resembling the common distoma. *Railiet*, i. D-75.

Distoma in the muscle of frogs. *Schellenburg*, i. D-75.

DRACUNCULUS MEDINENSIS (GUINEA WORM). Gains access to human body through drinking-water, after an intermediate stage in cyclops quadricornis. *Manson*, i. D-81, 82.

TREATMENT. Precipitated sulphur in tabloids two or four times a day. Local anæsthesia (cocaine, 1½ grains) for removal of worm, but not hypodermically injected in inflamed area as advised by Huntly. *Forbes*, i. D-82.

Hypodermic injections in several places around bleb of 1 to 1000 solution of perchloride of mercury. *Davoren*, i. D-82.

TÆNIÆ (TAPE-WORM). Pike and perch directly infected through swallowing the onkospheres of the bothriocephalus. *V. Schræder*, i. D-70.

Eggs of bothriocephalus and the developed worm found in pernicious-anæmia subjects in Roumania. *Babès*, i. D-70.

Cases of tænia nana and tænia flavopunctata. *Lutz*, i. D-70.

Case in which ten tape-worms were passed in two stools. To affirm that there are no more tape-worms in the intestine after one has been passed is imprudent. *Lebelle*, i. D-70, 71.

Experiments tending to show that pernicous anæmia is not due to toxic element generated by bothriocephalus. *Wlaew*, i. D-71.

Two living joints of tape-worm found in an appendix vermiformis. *Israel*, i. D-71.

Echinococcic cysts removed from painless swelling of spinal cord, and recovery from marked tabetic symptoms. *Szèkèrès*, i. D-71.

Case of large tape-worm differing from varieties observed in man, but found in seals. *Ijima and Kurimoto*, i. D-72.

TREATMENT. Pelletierine of Tanret best of all tænicides. Fasting or very light meal and copious enema previous evening. Morning, fasting, patient given 2¼ drachms pelletierine sulphate in solution and tannic acid 8 grains; ten minutes later a large glassful of water, and forty-five minutes after 1½ ounces castor-oil. In children pelletierine not suitable. ℞ Pumpkin-seeds (newly hulled), sugar, of each, 1¼ ounces; orange-flower water, enough to make a paste. The whole to be taken, fasting, early in the morning. *Dujardin-Beaumetz*, i. D-72, 73.

Papain, in doses of 10 grains, three times a day. *Bartholow*, i. D-73.

Results in 120 cases treated with male fern; 2½ drachms at a dose never exceeded. *Mangold*, i. D-73.

TRICHOCEPHALUS DISPAR. Case contradicting impression that this parasite is always harmless. *Boas*, i. D-81.

GENERAL TREATMENT OF PARASITIC DISORDERS. Vague nervous disorders often caused in children by abuse of santonine. Purgative should always follow its administration. *Combemale*, i. D-83.

As soon as santonine appears in the urine it becomes dangerous. When within two hours after a dose urine takes a red color on addition of potassium solution, danger is imminent. *Combemale*, v. D-22.

[Small doses of santonine are preferable, as suggested above, followed by a brisk cathartic. Sodium santoninate or, better,

santoninoxime is preferable to santonine, as less likely to give rise to untoward symptoms. C. SUMNER WITHERSTINE, Assoc. Ed., v. D-22.]

Case of amaurosis due to male fern and pomegranate-root. Male fern not to be given with castor-oil. *Gross*, i. D-83.

Two cases of amaurosis due to male fern. Experiments in dogs showing that toxic principles of male fern undoubted factors. *Masius*, i. D-83.

Amaurosis following the administration of 2½ to 4 drachms of ethereal extract of male fern. *Van Aubel*, i. D-83.

Amorphous filicic acid, the principle possessing tænifuge and toxic properties. *Poulson*, i. D-84.

Filicic acid much more apt to cause toxic symptoms when dissolved in ethereal or fatty oils. Frequent cause of jaundice. *Grawitz*, i. D-84.

Thorough purgation; then naphthalin, 2 to 6 grains, according to age (from 1½ to 12 years), in capsules. Pause of 8 days, then treatment repeated, and renewed 14 days later. Fats to be avoided from dietary. *Schmitz*, i. D-84, 85.

Thymol given in wafers procures brilliant results in almost all cases of anchylostoma, but only exceptionally useful for the expulsion of other parasites. *Sonsino*, i. D-85.

INTESTINES, DISEASES OF.

HYDATID CYST OF INTESTINES. Hydatid disease largely on the increase in Australasia. No part of the human body exempt. *Fitzpatrick*, iii. C-85, 86.

Want of success in the past due largely to an attempt to do too much at a single operation, instead of attacking different regions by separate operations. Case in which fibrous sac allowed to drop back unclosed after removal of cyst and contents, according to Russell's method. *Ryan*, iii. C-86, 87.

TREATMENT. Treatment of all non-suppurating cysts by incision, evacuation of contents, and closure of abdominal wound without drainage. By not removing fibrous investment, danger of hæmorrhage entirely avoided. *Bond*, iii. C-86.

Three successful cases treated by Bond's method; incision made directly under or opposite abdominal incision. Two incisions, even when cyst is empty, lie against each other. *Moore*, iii. C-86, 87.

Volkmann's operation recommended. In seven cases, period between laparotomy and puncture one week. *Magnusson*, iii. C-87.

Ventral hernia very apt to follow Lindemann's method. Cysts of moderate dimensions can be treated by Bond's method, and partial or complete excision in free cysts. *Duncan*, iii. C-87.

Operation six times by Bond's method, modified by not stitching adventitia. *Ryan*, iii. C-87.

Complete evacuation and enucleation of sac. Only danger to be apprehended is hæmorrhage. *Morgan*, iii. C-87.

Case in which hydatid cyst was situated above the symphysis pubis. *Frank*, iii. C-87, 88.

Three hydatid cysts from abdominal cavity of young woman,—one from under abdominal wall, another from anterior *cul-de-sac* of vagina, and the third from left hypochondrium. *Lejars*, iii. C-88.

Case of retroperitoneal cyst, supplemented by one in substance of psoas muscle; ascribed to transformation of a muscular hæmatoma. *Schönwerth*, iii. C-88.

Case in which long, lax pedicle caused tumor to greatly resemble floating kidney. *Banker and Roope*, iii. C-88.

Success rarely expected from simple tapping when cysts suppurating or contain daughter-cysts. Success in direct ratio with thoroughness of evacuation. *Rudall*, iii. C-88, 89.

Case showing that irruption of bile into hydatid cysts does not always cause their death. *Galliard*, iii. C-89.

Gastric disturbance and rise of temperature sometimes observed day after operation, and persisting, at most, ten days. Evidently due to intestinal infection. *Walther*, iii. C-89.

Case with jaundice and enlargement of the liver. After free purging number of hydatid cysts passed. At necropsy liver found riddled with small abscesses, but no hydatids. *Ryan*, iii. C-89.

Case in which two openings necessary, there being two cysts. *Treves*, iii. C-89.

Test case for Bond's operation, showing that, while bile might escape, it could make its way to the surface without doing serious harm. *Syme*, iii. C-89.

Successful cases. *Collins*, *Puppe*, iii. C-89.

Intra-peritoneal operation without suture of sac; peritonitis; fatal result. *Green*, iii. C-89.

INTESTINAL TUBERCULOSIS. Tuberculous extension, in cases of cæcal tuberculosis, may take place (1) by the peritoneum; (2) along the intestines; (3) through the glands in the ileo-cæcal angle; (4) by the iliac glands. *Pilliet and Thiéry*, i. D-50, 51.

Case of primary intestinal tuberculosis. *Hodenpyl*, i. D-51.

Case of alimentary origin ending in fatal acute miliary tuberculosis. *Zinn*, i. D-51.

Case of sudden death from tuberculous hæmatemesis. No pulmonary involvement. *Bounaix*, i. D-51.

Airol, in 3-grain doses, twice daily, causes diminution of pain and diarrhœa. *J. Fahm*, v. A-40.

TUBERCULOUS GROWTHS. Case of pain-

INTESTINES, DISEASES OF (contd.).

ful, hard swelling in right groin. Sharply defined, appearing as if attached to Poupart's ligament. Operation; hectic fever; death. At autopsy both lungs found studded with tubercles. Tubercular peritonitis traced as high as right hypochondrium. *Pilliet and Thiéry*, iii. C-98.

Tuberculous typhlitis, form simulating tumor of cæcal region, characterized at onset by abdominal pain in right iliac fossa. Alternating constipation and diarrhœa, bloody stools, emaciation. Fever rarely absent. Cachexia. *Coquet*, iii. C-99.

In a case of tuberculous degeneration impossible to unite divided ends of ascending colon and ileum. Colon divided at junction of ascending and transverse. Ascending colon closed by sutures. Open ends of transverse colon and ileum stitched together. Much better than simple short-circuiting. *Obalinski*, iii. C-99.

TUMORS.

DIAGNOSIS. Local gurgling in connection with tumors, of import to determine adhesions, positions, etc., in connection with other symptoms present. *Cordier*, i. D-55, 56.

Case of cancer of the cæcum, diagnosed during life as cancer of hepatic flexure of colon. *Pässler*, i. D-56.

Case of endothelial cancer of serous membrane of large intestine. Very rare. *Pick, Virchow*, i. D-56.

Cases of epithelial proliferation following rectal polypus. *Hauser*, i. D-56.

Diagnosis to be made by a correct appreciation of the anatomy of the parts and the location of the growth. Transposition of adjoining organs, colon, etc., detectable by percussion when full of gas. *Lockwood*, i. D-57.

Large percentage of retroperitoneal growths in children. Cancer or sarcoma of kidney. *McNabb*, i. D-57.

ILEO-CÆCAL REGION. A point of predilection for development of malignant tumors, mostly carcinoma and local intestinal tuberculosis. Onset of cancer very insidious. Symptoms those of typhlitis and coprostasis. *Körte*, iii. C-98.

Case of fibrosarcoma of valve causing obstruction; successful removal. *Lavisé*, iii. C-98.

CÆCUM. In diagnosing cancer of cæcum most careful palpation of abdomen necessary to detect tumor at an early period. *Adam*, iii. C-99.

Excision of cæcum should be attempted in every case of primary neoplasm, unless forbidden by extensive infiltration. *Magill*, iii. C-100.

Entero-anastomosis by implantation without resection successfully employed in cancer of the cæcum. *Jaboulay, Sargnon*, iii. C-100.

In complicated cases with obstruction, resection of intestinal loop without attempt at reduction; artificial anus in cases of occlusion. *Artus*, iii. C-100.

COLON. Diagnosis of cancer of the colon often very difficult. Total removal of diseased intestine and union by suture of two intestinal rings result to be aimed at. *Demons*, iii. C-78.

Case illustrating uncertainty of prognosis as to duration of life after excisions for malignant disease. Secondary growth, of which no evidence when colectomy performed, fatal five months later. *Littlewood*, iii. C-79.

Cases of malignant disease of ascending and descending colon mistaken for movable kidney. *Morris*, iii. C-79, 80.

Case simulating hydronephrosis. *Anderson*, iii. C-80.

Case showing diagnostic association between cancer of colon and floating kidney. *Owen*, iii. C-80.

Case of malignant tumor of ascending colon, in which ileo-cæcal anus established, patient living five years after operation. *Bérard and Poncet*, iii. C-80.

Case of carcinoma of colon in which no recurrence had taken place sixteen and a half months later, as shown by autopsy. *Israel*, iii. C-80.

Case illustrating value of Maunsell's operation. Chromicized catgut material best adapted for stitches. *Rose*, iii. C-80.

Resection of portion of sigmoid flexure for adenocarcinoma. *MacLaren*, iii. C-80, 81.

Case of multiple adenomatous polypi of large intestine associated with carcinoma in sigmoid flexure and lower end of rectum. *Morton*, iii. C-81.

GENERAL SURGERY OF INTESTINAL TUMORS. Length of small intestine that can with safety be resected, about eight feet. *Trzebicky*, iii. C-95.

Nearly two metres of intestine removed and definite recovery. *Kœberlé, Baum, Kocher, Hahn, Schlange*, iii. C-95.

In a woman 186 centimetres of small intestine removed; remained vigorous and in good health. *Hinterstoisser*, iii. C-95.

Case from which four feet of intestine resected; complete recovery. *Elliot*, iii. C-95.

Six and a half feet resected from a child of 8 years; complete recovery. *Ruggi*, iii. C-95.

In one case of cancer 63 centimetres and in another 1.60 metres were resected. Results of operation favorable. *Ullmann*, iii. C-95.

Case of fibroma, neoplasm adherent to intestine; partial ablation; gradually decreased in size. *Réclus*, iii. C-95.

To avoid complications which accompany resection, withdrawal from the abdomen and

exposure of tumors grafted upon intestines, prior to excision. *Jaboulay*, iii. C-95, 96.

Lipoma weighing thirty-four pounds successfully removed from abdomen. *Lundin and Hedbom*, iii. C-96.

INTUBATION.

INTUBATION IN DIPHTHERIA. Intubation made an ideal operation for relief of majority of cases by arrest of progressive descent of diphtheria process obtained from antitoxin. Apparent reduction in fatality of intubated cases of 49.5 per cent. as result of serum treatment. *W. H. Welch*, i. I-1, 2.

One hundred and seven intubations with 44.8 per cent. recoveries. *Pusey*, i. I-3.

Twenty-eight intubations with twelve recoveries. Forced feeding with tube passed through the nose prominent feature in the results. *Morrisson*, i. I-3.

About 100 intubations with 30 per cent. of recoveries. *Whitney*, i. I-3.

Eleven intubations with five recoveries. *Ball*, i. I-3.

In obstinate, recurring dyspnœa, after extubation, tracheotomy after ten days' waiting for improvement. *Turner*, i. I-3.

[Tracheotomy never necessary in those cases except when obstruction due to granulation tissue. If due to paralysis, thickening, or inflammation, a properly-fitting, rather small tube required. J. O'Dwyer, Assoc. Ed., i. I-3, 4.]

Case of sudden death, on re-insertion of tube, from tracheal cast pushed down by tube, after removal on seventh day. *Evans*, i. I-4.

[Death, in such cases, may be due to (1) asphyxia; (2) pushing down of membrane; (3) making false passage, beginning in ventricle. Latter more liable to occur, end of week, on re-introduction through previous obliteration of ventricle by pseudomembrane, etc. Practice in cadaver, where ventricle avoided with difficulty, recommended. Can only occur when patient's head thrown too far back, bringing lower end of tube against anterior laryngeal wall. Illustrative case. J. O'Dwyer, Assoc. Ed., i. I-4, 5.]

Death a few minutes after intubation in case treated with antitoxin. Supposed to be due to bulbar reflex. *Duran*, i. I-5.

[Convulsions usually due to partial asphyxia from prolonged attempts to intubate and uræmia. Illustrative case, in which high temperature (107° F.) was found to be cause of convulsions. J. O'Dwyer, Assoc. Ed., i. I-5.]

Intubation preferred to tracheotomy because it allows of more efficient coughing and better drainage of air-passages. *Bieser*, i. I-5.

Accidental swallowing of tube in 4 cases out of 122. Two of the children passed the tubes,—1 in two days, the other in three days. The other 2 died from disease; one tube found in the stomach, the other in cæcum. *Variot*, i. I-6.

[If properly placed and string removed, unusually large percentage of accidents. In only 2 out of almost 500 personal cases were tubes coughed out or swallowed. J. O'Dwyer, Assoc. Ed., i. I-6.]

Decreasing length of tube a means of obviating obstruction accidents. *Bayeux*, i. I-67.

[Length as important as breadth, thickness, or calibre; adopted not after experiments on cadaver, but on the living, steps being suggested by post-mortem findings. Diphtheria rarely confined to larynx when time for intubation or tracheotomy reached. Tracheal detached membrane greatest danger of intubation; expiration suddenly arrested by closure of lower end of tube. Hence length of latter. Bayeux's claim for short tubes theoretical, except in statement that they can be expelled by pressure from outside,—a method frequently employed in the U. S., Cheatham claiming to be first in its adoption. J. O'Dwyer, Assoc. Ed., i. I-8.]

In hospitals intubation replaces tracheotomy more and more. Mortality with serotherapy, 23.8 per cent.; tracheotomy and serotherapy, 62.5 per cent. Besides tracheal stenosis, grave infirmity; few reach adult life. *Editorial, Journal des Praticiens*, i. I-8.

Case in which use of catgut led to fatal asphyxia and to belief that tube had fallen into trachea, the catgut having absorbed moisture and appearing as soft tissue to finger. *Delvincourt*, i. I-8, 9.

[Sufficient to produce fatal apnœa, a silk thread having produced serious obstruction. In performing tracheotomy after intubation, important to remember that, unless cricoid cartilage cut, it is impossible to pull tube downward. Must be pushed upward with small forceps or by lateral external pressure. J. O'Dwyer, Assoc. Ed., i. I-9.]

Prolonged intubation and consecutive ulceration of trachea and mediastinal abscess. *Meslay*, i. I-9, 10.

Case of croup in which intubation was performed, followed by gangrene of the leg necessitating amputation. *Hailes*, i. I.10.

INTUBATION FOR FOREIGN BODY IN THE LARYNX. Intubation in infant in whom nut-shell had entered larynx. Complete relief. *Bonain*, i. I-10.

Intubation in a similar case, string having been left attached. Accidental withdrawal of tube with foreign body impacted in its lower aperture. *Meltzer*, i. I-10.

INTUBATION IN LARYNGITIS, TUBERCULAR. Intubation for dyspnœa; complete relief. Removal of tube in four days; breathing good following two days, then sudden fatal suffocation. Tracheotomy

INTUBATION (continued).
preferable to intubation in such cases. *Claude*, i. I-11.

INTUBATION IN LARYNGEAL STENOSIS. Case in which tracheotomy was first performed; stricture then dilated with sounds from below until small tube could be introduced from above. Tracheal wound allowed to close and large tubes introduced into larynx. *Cholmeley*, i. I-11.

[This procedure recommended in former editions of ANNUAL. Very slight enlargement of tracheal wound only necessary. From above the tube may enter one of the ventricles and create false passage. J. O'DWYER, Assoc. Ed., i. I-11, 12.]

INTUBATION IN ŒDEMA OF THE LARYNX. Intubation with permanent relief of dyspnœa in case of subglottic œdema, using a No. 6 tube. *Chiari*, i. I-12.

[No. 6 tube, the largest of children's tubes, not safe in adults, even immediately after the age of puberty, without a strong string attached. J. O'DWYER, Assoc. Ed., i. I-12.]

The rarest form and the most difficult to cure: complete obliteration of the larynx. Case of this kind due to agglutination of contiguous parts after extensive ulceration; treated by laryngofissure with excision of diaphragm, then intubation. Satisfactory progress, but death from accidental aspiration of food. *Schmiegelow*, i. I-13.

NEW DEVICES IN INTUBATION. New extractor, attached to finger-tip by means of a ring. *Dillon Brown*, i. I-14.

Similar device supplemented by an introducing device. *Lewinthal*, i. I-14.

Forced dilatation of larynx with three-bladed, pointed cannula as substitute for intubation and tracheotomy. *Bors*, i. I-14.

Modification of usual instruments so as to make one instrument serve for introduction and extraction of tubes, extractor having much shorter curve. *Egidi*, i. I-14.

[A single instrument cannot be constructed to satisfactorily serve both purposes. If tubes are long, curve on introducer must be short, else difficulty of entering larynx increased; tubes cannot be removed with short-curved extractor except in very young children. J. O'DWYER, Assoc. Ed., i. I-14.]

INVERSION OF THE UTERUS. See OBSTETRICS.

IRITIS. See EYE.

JAUNDICE. See LIVER, DISEASES OF; ICTERUS.

JAWS, DISEASES OF.

ANKYLOSIS.

ETIOLOGY AND PATHOLOGY. Specimen of ankylosis of maxillary articulation with complete fusion of the component parts of the joint. *Greig*, iii. K-15, 16.

Case of scarlet fever with diphtheria and double otorrhœa followed by ankylosis of the jaw. Extreme smallness and atrophy of the inferior maxillary. *Borelius*, iii. K-17.

Ankylosis of the jaw rare after lesions of the ear, but may follow tuberculous arthritis in patients suffering from suppuration of the ear. Three cases. *Ferreri*, iii. K-17.

TREATMENT. Osteotomy of the ascending branch of the maxillary often followed by return of the ankylosis through union of the osteotomized surfaces, in spite of precautions taken to bring about pseudarthrosis. Attempt to assure latter by interposition of masseter. Result excellent. *Rochet*, iii. K-17.

Helferich's method of condyloid resection. Having tied internal maxillary artery, a muscular flap from temporal is interposed after resection of condyle and fixed either to the maxillary or to the parotideo-masseteric fascia. *Lentz*, iii. K-17, 18.

Four cases treated by excision. Occasional failure results from an insufficiently free removal of bone. *Rochet*, iii. K-18.

Case of twelve years' standing in which a wedge (base posteriorly) removed from ascending ramus just above the angle. Excellent masticatory powers. *Nason*, iii. K-18.

Passive movements more easily persevered in by patients after this operation than when condyles are excised. *Whitehead*, iii. K-18.

Operation for unilateral bony ankylosis, the result of otitis following scarlet fever; wedge resected out of neck of the maxilla through an incision just beneath the zygoma. Scar almost invisible; excellent result. *Cabot*, iii. K-18.

Division of ramus on both sides and jaw constantly moved; good motion established. *Elliot*, iii. K-18.

OSTEITIS. Early sign of osteitis of the inferior maxillary terminating in necrosis. When inferior dental nerve destroyed, sign of its destruction anæsthesia of its terminal branches. *E. Vincent*, iii. K-21.

TUMORS. Close relationship existing between mixed adamantine growths and those almost exclusively formed of cysts. Transitional forms. Characteristic feature proliferation of epithelium into the thickness of the growth or into the cavities. Adamantine epitheliomata present more or less marked phases of differentiation. In certain cases tumor consists only of epithelial streaks of polyhedric cells. Epithelial masses formed of cylindrical peripheral cells and indifferent central cells, or star-shaped ones. In a third class the adamantine organ appears with its three orders of cells,—peripheral, cylindrical, flattened and central star-shaped cells. *Chibret*, iii. K-19, 20.

Case of osteosarcoma of the left inferior

maxillary cured by means of subcutaneous injections of pyoktanin, 10 drops of a 1 to 500 solution, daily, gradually increasing after first week until half an ordinary syringeful injected at a time. *Darby*, iii. K-20.

Case of epithelioma of the upper jaw showing association of a distinctly gouty history. Absence of lancinating pain, slight tendency to glandular enlargement, and delay in the appearance of cachexia. *F. Wister Thomas*, iii. K-20, 21.

JAWS, DISLOCATION OF. See DISLOCATIONS.

JAWS, FRACTURE OF. See FRACTURES.

JOINTS, DISEASES OF.

DIAGNOSIS. Auscultation quite as useful in joint affections as in affections of the lungs. Normal, very little derangement within the joint, giving no pain, leads to abnormal sounds, increasing in degree as the impediment is intensified. Five joint sounds: (1) simple, dry friction-sound; (2) dry grating sound; (3) coarse grating sound; (4) moist crepitant sound, and (5) coarse, crepitant sound. *Sir Benj. Ward Richardson*, iii. H-35, 36.

ANKYLOSIS OF HIP-JOINT. Case of complete ankylosis in which bony tumor found at level of lumbar cord. *Villar*, iii. G-53, 54.

Manual reposition, with multiple subcutaneous myotomy, can be performed in cases dating back eighteen months or two years, in which the deviation does not exceed twenty to thirty degrees. In more marked cases, thirty or thirty-five degrees, manual or instrumental osteoclasis, with multiple myotomy, better. In still more marked cases, linear section or cuneiform excision usually necessary. *Le Dentu*, iii. G-54.

In fibrous ankylosis, electrolysis; continuous current passed directly through the joint, with the negative pole nearest the adhesions, amount given ranging from 40 to 150 milliampères. *F. W. Gwyer*, iii. H-36.

ANKYLOSIS OF KNEE-JOINT. Case of fatal fat-embolism after forcible straightening of both knee-joints. *Ahrens*, iii. G-54, 55.

Case due to suppurative inflammation of knee-joint. Motion completely restored by daily use of apparatus consisting of weight and rope, latter attached to ankle. *Bradford*, iii. G-55.

Case of excision of both knees for angular ankylosis. *Newbolt*, iii. G-55.

ARTHRITIS, SUPPURATIVE. New form of infective inflammation subsequent to influenza. Most frequent form an osteitis or osteoperiostitis; may go on to suppuration, may produce local swelling and œdema, and be followed by resolution. Symptoms manifest themselves three or four days after inception of influenza. Resistance to all treatment very marked; best results derived from moist heat, massage, with incision and drainage when suppuration. *Felix Franke*, iii. H-31.

[Influenza may occur in connection with any joint-lesion as a mere coincidence. CONNER AND FREEMAN, Assoc. Eds., iii. H-31.]

Case of arthritis following pneumonia; mixed infectien due to pneumococcus and the streptococcus. *H. Meunier*, iii. H-31.

TREATMENT. Skin thoroughly cleansed and fine point of the cautery, heated to a red heat, inserted along the point of the greatest development of the granulations. Twelve to eighteen punctures made. Part then filled with iodoform gauze, limb incased in plaster, and compression used. Results very satisfactory, *Kirmisson*, iii. H-31, 32.

CHARCOT'S JOINT DISEASE. Case in which laxity of the knee-joint was very marked and the retroflexion so great when the patient stood on that limb that the condyles seemed about to burst through the skin. *Nugent*, iii. H-34.

HYDRARTHROSIS. Intermittent hydrarthrosis a rare and little-known disease; most frequent in the knee; appears at regular intervals, varying from one to three weeks. Cannot be attributed to rheumatism, arthritism, malaria, or nervous affection; supposed to be due to an auto-intoxication. *Chauvet*, iii. H-32.

Case of intermittent hydrarthrosis. *G. Colonna*, iii. H-32.

[A number of cases of this affection have apparently been overlooked by Chauvet. Brincken regards the disease as bacterial in origin and insists that it is at times controlled by large doses of arsenic. CONNER AND FREEMAN, Assoc. Eds., iii. H-32, 33.]

SYNOVITIS. Relation of gonococcus to synovitis in blennorrhagic arthritis indubitable. *Kespighi and Burci*, iii. H-33.

Case of suppurating tendinous synovitis of blennorrhagic origin. Pus contained only gonococci, to the exclusion of all other pyogenic microbes. *Jacobi and Goldmann*, iii. H-33.

Peculiar form of chronic synovitis of the sheath common to the short extensor and long abductor of the thumb observed in two cases. Kocher's fibrous stenosing synovitis, —more or less pain in sheath, irradiating throughout forearm. *F. de Quervain*, iii. H-33.

Affection of knee-joint simulating dislocation of semilunar cartilage. Growth attached to synovial membrane lining capsule, easily removed, derived from synovial fringes. *C. Byron Turner*, iii. H-33, 34.

TREATMENT. Case of tuberculous

JOINTS, DISEASES OF (continued). synovitis of the knee cured by injections of iodoform-oil. *Troquart*, iii. H-34.

Six to ten drops of tincture of iodine injected with ordinary subcutaneous syringe, without emptying contents of tumor. In certain cases renewal of injections necessary. No inflammation. *Duplay*, iii. H-34.

TRAUMATIC MENISCITIS. A circumscribed inflammatory thickening of the borders of the interarticular cartilages of the knee, resulting from contusion, sprain, and pinching of meniscus by forced movements of the knee; painful thickening between lateral internal ligament and edge of patellar ligament. Best treatment by massage, including entire limb. *Roux*, iii. H-36.

KERATITIS. See Eye.

KERATOSIS.

TREATMENT. In mild cases ablutions with pumice-stone or salicylic soap followed by inunctions of glycerole of starch. In severe cases, same frictions with additional use of black soap, salicylate, pyrogallol, sulphur, or naphtha soap and application of codliver-oil, resorcin, or creasote plaster. For facial keratosis: 1. Twice a week scrubbing with black soap. 2. Before retiring, daily application of ointment composed of ℞ Resorcin, 3 grains; salicylic acid, 4½ grains; naphthol, 4½ grains; precipitated sulphur, 15 grains; lanolin, 1½ drachms; vaselin, 3¼ drachms. If disease obstinate, plaster of black soap dissolved in alcohol, spread upon piece of flannel, applied and kept in place all night, repeated until local inflammation produced. Treatment then completed by applications of salicylic and tartaric acid ointment, 1 part to 20. Return should be made to applications of black soap as soon as cutaneous irritation has disappeared. *Brocq*, iv. A-34, 35.

[The ideal treatment consists in destroying the circumpilar projections with the electrolytic needle. I have done this on the arms and faces of women who insisted on the treatment, and with really remarkable results. L. Brocq, Assoc. Ed., iv. A-35.]

Case of arsenical keratosis, arsenic having been administered for psoriasis. *Payne*, iv. A-35, 36.

KIDNEY, DISEASES OF. (See also Albuminuria; Bright's Disease; Uræmia.)

ABSCESS, RENAL AND PERIRENAL.

ETIOLOGY. New pathogenic, capsulated bacillus producing not only simple septicæmia, but almost always metastatic nephritis. *Nicolaïer*, i. E-24.

Suppurative pyelonephritis due, in the majority of cases, to the bacterium coli commune. *Wunscheim*, i. E-24.

Case showing symptoms of suppurative nephritis, of ten years' standing, thought to be due to typhoid fever. *Follet*, i. E-24, 25.

Injection of dead bacteria, especially proteus vulgaris, does not produce visible suppuration of the kidney, but only a round-cell infiltration. *Schnitzler and Savor*, i. E-25.

Four cases due to perityphlitic and one to perinephritic inflammation. *Sachs*, i. C-57.

TREATMENT. Four cases of perirenal abscess in which evacuation was followed by recovery. In one, pneumothorax as complication due to perforation of diaphragm by abscess. *Werner*, i. E-25.

Case in child of 20 months, following a fall; fever, anorexia, hæmaturia, vomiting, constipation. Purulent collection extending to top of scapula. Evacuation and recovery. *Buscarlet*, i. E-25.

CALCULUS. Absolute diagnosis cannot be made. In anuria and profuse hæmaturia delay fatal. Pyuria and microscopical hæmaturia indications for operative exploration. Oblique incision to be preferred. Acupuncture not to be relied upon. Incisions along convex border while circulation controlled by digital compression. Incisions into pelvis to be avoided. Primary nephrectomy only for extreme cases. Primary union by suture where feasible. Tight packing of kidney wound and perirenal space endangers nerve-suppy of colon. *Ransohoff*, iii. E-63, 64.

Importance, if necessary, of drawing kidney out on the flank for critical examination. *Greiffenhagen*, iii. E-64.

Case in which almost total suppression of urine occurred after nephrolithotomy. A quart of solution of common salt injected into vein. Apparent result: free diuresis. *McBurney*, iii. E-64.

CYSTIC DEGENERATION. Rare; diagnosis difficult. Symptoms: dull pain, rarely resembling that of nephritic colic; anuria near the end. Tumor rarely fluctuating; frequently bilateral. *Gallois*, i. E-34.

Case in which death from uræmic coma fourteen days after initial symptom. Most cases present clinical features of Bright's disease and remain undiagnosed. *Pye Smith*, i. E-34.

Case showing insidious development of disease. Unsuspected during life owing to slight renal symptoms, pointing to interstitial nephritis. *Demantké*, i. E-34, 35.

Case in which evolution of disease took place without any peculiar symptom. *Clarke*, i. E-35.

DROPSY, RENAL. That it is due to an inflammation of subcutaneous and internal vessels is supported by clinical and anatomical facts. Due to glomerulitis. *Senator*, i. E-21, 22.

Several cases of œdema without albu-

minuria. Rapid filling of peritoneal cavity; alopecia and profound nutritive changes. Probably of vasomotor origin. Reduction of hæmoglobin a characteristic feature. *Tchirkoff*, i. E-22, 23.

HÆMORRHAGE, PERIRENAL. Autopsy in cardiac case showing extensive blood-clots in front and behind left kidney. No aneurism; infarcts in lungs and spleen. *Hawkins*, i. E-36.

HYDRONEPHROSIS. Due in many instances to an inherited tendency, often associated with more or less malposition or mobility of kidney. Outlet of ureter thus compromised. *Cramer*, iii. E-63.

Case of double hydronephrosis, one kidney being almost wholly destroyed. Loop in ureter restricting flow of urine. *Launay*, i. E-29.

Case of intermittent hydronephrosis, probably due to movable kidney. Beneficial effect from pad applied over left lumbar region. *Goodger*, i. E-29.

Case of 2-year-old child showing progressive enlargement of abdomen; puncture. Lumbar nephrectomy showed narrowness of ureter at renal insertion. *Martin*, i. E-29.

Case in which total abdominal nephrectomy had been performed with successful results. *Rouville*, i. E-29.

Case in which enormous cyst was composed of distended ureter and renal pelvis. Removal of portion made up of kidney-tissue. Successful result. *Lane*, iii. E-63.

MOVABLE KIDNEY. Pregnancy and genital disorders not as important factors as generally thought. Mechanical and diathetic causes more apt to cause it; enteroptosis rare factor. Bandage usually sufficient; surgical measures exceptionally required. *Legry*, i. E-29, 30.

Case of floating kidney accidentally discovered in an infant of 8 months. No inconvenience caused. *Stewart*, i. E-30.

Case of dislocation of kidney, as result of fall. Organ easily felt; swollen and sensitive. Rest in bed caused recovery in a few days. *Wilson*, i. E-30.

Always due to mechanical cause, corset especially; direct violence,—fall or blow. *Küster*, i. E-30.

In six females no causal relationship with corset traceable, but in four of these history of violent exercise. *Tidey*, i. E-30.

Liver above, intestines below, spleen and intestines to the left of kidney, support latter; fat-capsule does not. Mobility of right organ due to loss of balance in support. Pregnancy a factor, especially if patients leave bed early, etc. *Kendal Franks*, i. E-30, 31.

TREATMENT. Out of 374 operative cases but 7 deaths occurred within four months of operation. But 4 attributable to operation. Relief of symptoms in 78 cases out of 100 in which intra-parenchymatous sutures employed. Nervous symptoms less often relieved than painful ones. Thirty-six out of 100 received no benefit. As to pain, nephrorrhaphy successful in 88 cases out of 100. *Albarran*, iii. E-64, 65.

Nephrorrhaphy in 59 women; 1 death; only 2 relapses. *Edebohls*, iii. E-65.

Reports of cases treated by operation. *Clark*, *Johnson*, *Lafourcade*, *Stokes*, *Cheyne*, *Gage*, *Küster*, iii. E-65.

New method of nephrorrhaphy. Kidney fixed by a loop of living tendon. Tried successfully in one case. *Vulliet*, iii. E-65, 66.

Abdominal incision; long needle passed from outside through tegument and dorsal muscles into peritoneal cavity. A hand in abdominal incision passes ligature through kidney, needle passed again through integument, and ends knotted together. Hand in abdomen places kidney in position. *Reed*, iii. E-66.

Fixing floating kidney by ligaturing it to transverse apophyses of lumbar vertebræ. *Howitz*, iii. E-66.

NEURALGIA OF KIDNEY. Class of cases in which there exists no apparent lesion to account for pain; leads to operation; cure apt to follow. *Senator*, iii. E-64.

Case in which exploratory nephrectomy was followed by a cure. *Duke*, iii. E-64.

PERIVESICAL INFLAMMATIONS. Chronic perivesical inflammation occurs only when pathological process involves the entire extent of surrounding perivesical connective tissue; clinical symptoms are present because bladder robbed of expansive quality and is forced to remain in state of permanent contraction. *E. Fuller*, iii. E-34, 35.

[Tendency to confound cases of perivesical inflammation with muscular vesical hyperplasia. In latter class there always exists some obstruction to outflow of urine; if obstruction removed, cure of vesical hyperplasia will eventually result. KEYES AND FULLER, Assoc. Eds., iii. E-35.]

PYONEPHROSIS. Three cases of renal lesions caused by colon bacillus. Lesions mostly peripheral. Similarity in gross appearances with cortical tuberculosis. Bacillus coli communis becomes pathogenic under certain circumstances when access to kidney reached by blood or ureter. *Tilden Brown*, iii. E-62, 63; i. E-36.

Case showing intermittent character. Ureteritis, cystitis, and attacks of retention of urine, during which usual purulent deposit in urine disappeared. *Hogge*, i. E-37.

Two cases supporting possibility of a parasitic origin. *Von Kahlden*, i. E-37.

Case in which renal substance was found almost entirely destroyed and replaced by large intercommunicating cysts containing thin, turbid, fluid urine and some pus, be-

KIDNEY, DISEASES OF (continued).

sides eight to fifteen calculi. *Loomis*, i. E-37.

Pus in operated case found to contain bacterium coli, causing death in guinea-pigs, with symptoms of peritonitis, congestion of liver, etc. *Olivieri*, i. E-29.

SURGICAL KIDNEY. Case in which chief symptoms were fever, purulent urine, localized renal tenderness. Incision showing numerous miliary abscesses; organ removed. *Weir*, iii. E-63.

Four cases of nephrectomy, with one death; three of these secondary to nephrotomy. *Woodward*, iii. E-63.

TRAUMATISM. Case of rupture due to fall on the lumbar region in a boy. *Kölliker*, i. E-35.

Conclusion from examination of thirty-six cases that hæmorrhage may occur without rupture from tearing of vascular net-work around kidney. *Güterbock*, i. E-35.

Three cases of traumatic rupture,—one from crushing, two from heavy fall. *Roux*, i. E-36.

In perirenal uræmic effusions following injuries blood partly discharges into ureter and partly into perirenal tissue. Generally aseptic; effusion absorbed. Compression and urinary and general antisepsis only necessary. *Tuffier and Levi*, i. E-36.

Traumatisms in renal region cause either lacerations of renal structure, especially in males, or mobility of the organ, especially in females. *Küster*, iii. E-66.

TREATMENT. Majority of perirenal extravasations of blood and urine resulting from renal traumatisms recover under rest and expectant treatment. When symptoms do not improve, incision exposing seat of injury. *Tuffier and Levi*, iii. E-66.

Case of rupture in which organ was exposed and extravasation drained off. *Kölliker*, iii. E-66.

Persistent hæmorrhage after renal injury; nephrectomy successfully performed. *Guinard*, iii. E-66.

Removal of portion of one kidney causes temporary increase of urine, but no other ill effects; also variable amount of general atrophy of that kidney; hypertrophy of opposite kidney. When renal tissue reduced one-fourth of original weight, great increase of urine and urea dependent upon rapid emaciation, not checked by liberal diet. *Bradford*, iii. E-66, 67.

TUBERCULOSIS OF THE KIDNEY.

DIAGNOSIS. Of 174 cases observed sufficiently to justify positive diagnosis of tubercular diseases of urinary organs, only 18 gave unmistakable evidences of involvement of kidneys. In majority the bladder gave first clinical signs. *Bryson*, iii. E-67, 68.

Most important symptoms: polyuria, hæmaturia, intermittent renal pains, true nephritic colic with discharge of tuberculous material through ureters. In urine, pus; albuminuria rare; Koch's bacillus. Swelling in flank. *Du Pasquier*, i. E-25, 26.

A frequently-overlooked disease. Usually diagnosed as idiopathic cystitis, which in reality does not exist. When ordinary causes of cystitis (gonorrhœa, stricture, irritating drugs, some spinal disorder, etc.) do not exist, tuberculous disease of genito-urinary tract to be suspected. Main symptoms: cystic irritability; lump in one epididymis; early appearance of blood in urine with comparatively odorless flow of caseous matter. Pain in urination. Peculiar remissions in severity of symptoms. Entire failure of ordinary general and local remedies characteristic. *F. S. Watson*, i. E-26.

Case in which leucocytes and Koch's bacillus led to diagnosis in sudden case without morbid history. *Pousson*, i. E-26, 27.

Cortical tubercular foci may represent origin of bacilli, in some cases,—a localization to be borne in mind. *E. Meyer*, i. E-27.

Large, globular tumor on left side of abdomen and thick, milky urine peculiarities of a case verified by necropsy. *Carpenter*, i. E-27.

Case in which disease came on two weeks after gonorrhœa. Daily chills, sweating, loss of flesh. Urine straw-colored, acid, albuminous, containing hyaline casts and tubercle bacilli. Pain in lower portion of abdomen and on micturition. Four days before, hyperpyrexia. *Loomis*, i. E-27, 28.

Bacilli in urine insufficient to differentiate cystic from renal tuberculosis. Nephritic colic; micturition, ending in purulent and bloody discharge, very probable sign of renal tuberculosis. *Grancher*, i. E-28.

In case of urogenital tuberculosis, all the organs of only left side affected. Tuberculous testicle of right side removed four years before possible explanation of unilateral immunity. *Freyhan*, i. E-28.

TREATMENT. Surgical measures may avert immediate danger and relieve pain, Resection of focus, degree of involvement and patient's condition permitting. *Watson*. i. E-28.

Doubtful whether surgical intervention legitimate in primary renal tuberculosis. *Pousson*, iii. E-68.

TUMORS OF THE KIDNEYS.

MALIGNANT GROWTHS. Operation so far done 150 times with mortality of 50 to 66 per cent. before 1890, and 20 to 25 per cent. since. Seventeen cases have lived a year or more after operation. Many died of recurrence at subsequent date. Large mortality due to tardy diagnosis. When palpable tumor only symptom, early diagnosis difficult or impossible. When hæmatinuria

and palpable tumor, diagnosis from renal colic difficult. Hæmaturia without palpable tumor, diagnosis made by microscope; urine deposits yellowish-gray granular matter, round or spindle cells. *Rovsing*, iii. E-68, 69.

Successful nephrectomies for malignant disease in young children. *Werder*, *Dalziel*, *Kreutzmann*, *Buchanan*, *Allingham*, iii. E-69.

Case of child in which recurrence followed by death in nine months. *Dunning*, iii. E-69.

Case of primary carcinoma of kidney, confirmed by autopsy. *Martin*, i. E-32.

Long-standing hæmaturia found to be due, by exploratory incision, to compression of ureter by an epitheliomatous induration. Death from metastatic pneumonia six weeks after operation. *Tuffier*, *Levi*, i. E-32.

Anuria due to compression of one ureter by cancerous growth associated with reflex paralysis of secreting function of uninvolved kidney. Incision into pelvis of kidney whose ureter was blocked relieved tension, immediately followed by restoration of function of opposite organ. *Picqué*, iii. E-69.

Death of child successfully operated on eleven months previously. *Holmes*, iii. E-69.

Two infantile cases of nephrectomy for malignant disease still well 3 and 2½ years, respectively, after operation. *Abbe*, iii. E-69.

Successful removal of carcinomatous kidney. Noticeable tumor for six years. *Anderson*, iii. E-70.

Successful nephrectomies in adults for malignant disease. *Swift*, *Coutagne*, iii. E-70.

Four cases in children. Sarcoma often congenital, usually unilateral; primarily extra-renal, surrounding rather than infiltrating renal tissue. Round-celled most common form. Exceedingly rapid course; death by exhaustion. *Steele*, i. E-32.

Case of primary sarcoma in a child of eleven months. Symptoms: constipation, nausea, weakness, swelling side of abdomen; blood in urine distinctly observed only once. Death eleventh day after first symptom. Round-celled sarcoma. *Mackintosh*, i. E-33.

Case, in a child 5 years of age, in which growth weighed 6½ pounds. Had not caused hæmaturia, varicocele, or any other urinary trouble. History of violent blow over lumbar region in a fall. Death from exhaustion. *Bérard*, i. E-33.

Recovery in a man of 62 years after nephrectomy for an alveosarcoma weighing 1 pound 9½ ounces. *Mollison*, i. E-33, 34.

Renal tumor not operable when accessible to palpation; hence early diagnosis of special import. Hæmaturia, bacilli, crystals, cancerous elements should be watched for, and exploratory lumbar incision performed if need be. "Venture" incision warranted if side affected not known. *Rovsing*, i. E-31, 32.

MISCELLANEOUS GROWTHS. Case of rhabdomyoma, of child 3½ years old, in which growth occupied almost the whole abdominal cavity and was intimately connected with right kidney. *Brock*, i. E-34.

Hydatid cysts of kidney. Extremely rare. Diagnosis difficult unless rupture in pelvis of kidney and elements detected microscopically. Withdrawal of small quantity of fluid with hypodermic syringe from kidney, when hydatid fremitus detected. *Gairdner*, i. E-34.

Nephrectomy for adenoma in child of 23 months, well two years and four months after operation. *Malcolm*, iii. E-69.

Successful removal of a 48-pound fibroma from tissues enveloping kidney. *Reverdin*, iii. E-69.

LABURNUM, POISONING.

Three cases of poisoning by fruit of *Cytisus laburnum* in children. Symptoms resembling those of cholera, strychnine poisoning; general clonic convulsions. Emetic and castor-oil at outset, and small doses of opium later. Large rectal injections for continued diarrhœa. *Saake*, v. D-13.

Cases in five children: pale, collapsed, with dilated pupils, vomiting; laburnum-seeds present in vomited matter. Seeds of laburnum contain a narcotico-acrid alkaloid, —cytisine. *O. Kile*, v. D-13.

Cases reported by *Hedley Tomlinson and A. H. Stephen*, v. D-13.

LACHRYMAL APPARATUS.

Case of traumatic prolapse of lachrymal gland in 2½-year-old-boy due to fall on sharp stones; excision; no perceptible difference in moistening of eyes or flow of tears, confirming de Wecker's theory concerning emotional lachrymation. *Haltenhoff*, iv. B-29.

Case of symmetrical hypertrophy of both lachrymal glands. *Ripault*, iv. B-30.

Case of symmetrical tumor of lachrymal gland of trachomatous origin. In trachoma chronic adenitis of lachrymal glands possible. *Baquis*, iv. B-30.

Case of tuberculosis of lachrymal glands diagnosed as adenoma. *Salzer*, iv. B-30.

Case of congenital epiphora of both canaliculi in one eye and of inferior one in other in child complaining of epiphora; hereditary origin. *Lafite-Dupont*, iv. B-30.

Case of bilateral congenital fistulæ of lachrymal sacs. *Roy*, iv. B-30.

Case of congenital monolateral fistula of lachrymal sac situated above and parallel to inferior canaliculus; secondary canal without communication with normal channel. *Dunn*, iv. B-30.

Case of obstinate lachrymal fistula cured by curetting sinus and uniting freshened

LACHRYMAL APPARATUS (contd.). edges of exterior opening by stitches, and periodical dilatation of lachrymal canal. *Armaignac*, iv. B-30.

Lachrymal obstruction often successfully treated by slitting upper canaliculus. *Story*, iv. B-30.

In strictures of duct electrolysis does not insure against relapse; current of 4 to 6 milliampères; large-calibre instruments to be avoided. *Lagrange*, iv. B-30.

Large probes in lachrymal obstruction recommended. *Theobald*, iv. B-31.

Obstruction of lachrymo-nasal duct; rapid dilatation by immediate forcing with wide-lumen instrument. *Goodman and Ziegler*, iv. B-31.

Lachrymal duct kept open by passing small-sized cannula containing probe through canal; cannula removed and split pea of lead fastened to one end of thread pulled up until its progress is arrested; second shot attached to upper end near punctum. *Vilas*, iv. B-31.

Importance of determining cause of epiphora; obstructive, hypersecretive, reflex. *Rochon-Duvigneaud*, iv. B-31.

Three-fourths of ocular affections in Persia due to obstruction of lachrymal canal. *Galezowski*, iv. B-31.

Case of acute bilateral dacryo-adenitis following acute tonsillitis. *Panas*, iv. B-31.

Case of dacryocystitis following slitting and probing of canaliculi; total blindness. *Valude*, iv. B-32.

Fatal case of dacryocystitis caused by injection of 3-per-cent. solution of alum acetate into canal. *Leplat*, iv. B-32.

Pneumococcus, a normal occupant of respiratory tract, may cause ocular trouble by infection through lachrymal passages or endogenetically. *Cuénod*, iv. B-32.

Sodium fluoride, 0.5-per-cent. solution, recommended in dacryocystitis. *Duclos*, iv. B-32.

Case of primary sarcoma of laryngeal caruncle cured after removal of orbital contents. *Formeaux*, iv. B-33.

LAPAROTOMY. See Abdominal Operations and Ovaries; Cœliotomy.

LARYNGITIS.

Various forms of acute septic inflammations of the throat hitherto described as acute œdema of the larynx, œdematous laryngitis, erysipelas of the pharynx and larynx, phlegmon of the pharynx and larynx, and angina Ludovici probably identical pathologically, and represent degrees varying in virulence of one and the same process. *Felix Semon*, iv. D-80.

Erysipelas of the larynx, phlegmonous pharyngitis, and angina Ludovici so similar that the slight difference in their starting-point not a sufficient reason for making a different classification necessary. *D. Haviland Hall*, iv. D-80.

In diseases proposed to be classed as identical, very few bacteriological examinations made. No less than ten microbes might produce the same pathological condition, and ten conditions might be the result of the action of one microbe. *Butlin*, iv. D-81.

Much good would result from this simple modification in the classification of these diseases suggested by Semon; own experience tends in the same direction. Typical angina Ludovici the least likely to be pathologically identical with the rest. *Dundas Grant*, iv. D-81.

Acute submucous laryngitis may be of primary or secondary origin or of a non-infectious origin induced by violence, burns, neighboring lesions or constitutional affections. In both the three stages of laryngitis distinguished. *Kuttner*, iv. D-81.

LARYNX, DISEASES OF. (See also Laryngitis; Larynx, Neuroses of; Tuberculosis of Larynx.)

FRACTURE OF THE LARYNX AND TRACHEA. Statistics of thirty-three cases with twenty-two deaths. Dyspnœa a constant and very distressing symptom, with cyanosis, a small pulse, and cold skin. *Briegel*, iv. D-91.

Statistics of thirty cases recorded since 1881. Case of fracture occurring while playing a wind instrument. *T. J. Harris*, iv. D-91.

Case in which throttling led to sudden death. Post-mortem: thyroid gland buried and crushed; both wings of thyroid cartilage fractured; mucous membrane of larynx not involved. Dislocation of crico-thyroid articulation on left side; partial rupture of crico-thyroid muscle. *Kemper*, iv. D-92.

Case in which no treatment was instituted. One year later increasing difficulty in respiration and death. *Unshelm*, iv. D-92.

Case followed by œdema, with abduction paralysis of right vocal cord; tracheotomy; recovery. Two years later right arytenoid cartilage observed to have been dislocated. *Joél*, iv. D-92.

Hæmoptysis and surgical emphysema arising from fracture of a necrosed larynx. *Middleton*, iv. D-92.

Case of fracture of thyroid and cricoid cartilages and hyoid bone; tracheotomy; death. *Morton*, iv. D-92.

As shown by Hamilton, notable difference as regards the prognosis in favor of fractures caused by firearms; out of sixteen cases but five ending fatally, while the average mortality from 60 to 31.25 per cent. *Mitry*, iv. D-92, 93.

HERPES OF THE LARYNX. Only occurs

as one of the localizations of herpetic fever; most frequent seat on the posterior surface of the epiglottis and the region of the arytenoids. Herpetic vesicles surrounded by an inflammatory zone. Odynphagia, dysphonia, possibly dyspnœa. *Brindel*, iv. D-90.

INFRA-GLOTTIC SPACE.

STENOSIS. Infra-glottic space has not received attention its importance as an inherent portion of the larynx warrants. Stenosis of infra-glottic region presents features of unusual danger increased by iodide of potassium. Treatment of laryngeal disorders involving the glottis more effective when the infra-glottic region considered as a part of the diseased area. *Sajous*, iv. D-108.

Infra-glottic tract frequently the seat of syphilis, tuberculosis, growths, rhinoscleroma, and foreign bodies. Too great belief placed in general antisyphilitic treatment in severe stenoses; this may be fatal. Syphilitic perichondritis yields only when general treatment is aided by surgery. *Massei*, iv. D-108.

TUMORS. Infra-glottic polypi often cause greater obstruction to respiration than ordinary polypi. Most common form is fibroma; myxoma occasionally associated with fibroma. Exceptionally, cysts, chondromata, and circumscribed keratosis noted. As a rule, may be removed by endolaryngeal methods; sometimes through cervical wound. When these fail, infra-thyroid laryngotomy. *Ferreri*, iv. D-109.

STENOSIS OF THE LARYNX. Case of complicated laryngeal stenosis of double origin, hysterical and diphtheritic. Paralysis of right cord the cause of adductor spasms of the left through liability to hysterical spasm presented by the patient. Hypnotic treatment removed hysterical symptoms, while paralysis of diphtheritic origin remained. *E. Kraus*, iv. D-89.

TREATMENT. New method of dilatation: preliminary tracheotomy; cylindrical laminaria kept in position by a traction-thread passing through the mouth, and below by another thread coming out through the tracheal opening. *Corradi*, iv. D-90.

Case of laryngeal stenosis in a tuberculous woman, disappearing after miscarriage. *Bayer*, iv. D-90.

SYPHILIS OF THE LARYNX.

TREATMENT. While there is doubt as to character of lesion,—iodides should be given to exclude syphilis,—it should be borne in mind that some cases of a non-specific nature—malignant neoplasms, etc.—may show temporary improvement under its use. *Riee*, iv. D-89.

Iodide of potassium may produce a temporary improvement in malignant cases and for a time mask their true nature. *Delavan*, iv. D-89.

In some cases of laryngitis with stenosis and dyspnœa potassium iodide may produce very unpleasant effects. Dyspnœa may be increased and the inflammatory action aggravated. *Robinson*, iv. D-89.

Case of laryngeal stenosis produced by a gumma. *Polyak*, iv. D-89.

Several cases of stenosis consequent on syphilitic perichondritis; instead of performing tracheotomy, intra-muscular injections of corrosive sublimate tried, once a week, with good results, patients breathing freely after the second. *Irsai*, iv. D-89.

TUMORS OF THE LARYNX. Two cases of cystic tumor of the larynx in old persons; both successfully removed. Cystic tumors show little or no tendency to recur. *Mackenzie*, iv. D-100.

Case of retention cyst of the left arytenoid cartilage which caused no trouble. Location uncommon. *Polyak*, iv. D-101.

ADENOMA. Case of recurrent adenoma of the larynx. *Marsh*, iv. D-101.

Case of adenoma operated upon some years previously for a cyst situated on the same spot. *Corradi*, iv. D-101.

Case of lymphadenoma. *Donelan*, iv. D-101.

LYMPHANGIOMA. Case of cavernous lymphangioma of the aryepiglottic fold. Tumor probably congenital. Recovery after removal, but recurrence some months later. *Koschier*, iv. D-101.

Case of angioma of the left vocal cord. *De la Sota y Lastra*, iv. D-102.

FIBROMA. Case of very large fibrous tumor of the right ventricle. *Muschold*, iv. D-102.

PAPILLOMA. Procedure for the endolaryngeal removal of papillomata in children. (See text.) *Chappell*, iv. D-102.

LIPOMA. Case of polypoid lipoma of the larynx. *Farlow*, iv. D-102.

TUBERCULOUS TUMORS. Case of pulmonary tuberculosis, complicated by epithelioma of the larynx. *Jakins*, iv. D-103.

Affection one of middle life; affects males more frequently than females (23 to 9); only 4 out of 42 cases had no pulmonary tubercle either before or after. Of slow growth and sometimes multiple; symptoms: hoarseness, often dyspnœa, rarely dysphagia; no pain, as a rule. *Payson Clark*, iv. D-103.

Case of carcinoma of the larynx with histological demonstration of tuberculosis. *Baumgarten*, iv. D-103.

MALIGNANT TUMORS. Case of epithelioma of the epiglottis in which there were unmistakable symptoms of secondary affections of the liver and lungs. *Bronner*, iv. D-103.

Case in which tumor visible only on left aryepiglottic fold, autopsy showing that it had destroyed greater part of left side of the pharynx. *Heymann*, iv. D-103.

Dangers of exploratory thyrotomy and of

LARYNX, DISEASES OF (continued). thyrotomy with removal of intrinsic carcinoma very slight. Operation advisable in cases of intrinsic origin of limited extent, if arytenoid region is not involved, and in which lymphatic glands of the neck not affected. No dressing. Head kept low and patient on his side. Next day water or other fluids are swallowed. *Butlin*, iv. D-103, 104.

LARYNGEAL OPERATIONS.

LARYNGECTOMY. Twelve cases in which radical operations were performed—seven recoveries, five deaths—considerably surpass the results hitherto recorded. Equally satisfactory are the results so far as phonation is concerned. (For technique of operations see text.) *F. Semon*, iv. D-104, 105.

Three hundred and nine cases collected from various sources; 101 died within first eight weeks after operation from shock, hæmorrhage, pneumonia, septic infection, or exhaustion. Mortality after complete laryngectomy, 35 per cent.; after partial excision, 27 per cent. But two instances of relapse after three years. *White and Power*, iv. D-105.

Case of extirpation of larynx and part of œsophagus: (1) impossible to be certain of extent of disease prior to operation, where no subjective symptoms present; (2) surgeon must never promise beforehand to limit operation to removal of only a part of the larynx; (3) most extensive operations, including removal of hyoid bone and base of tongue, can be undertaken with safety. *Péan*, iv. D-105, 106.

THYROTOMY. Twenty-eight thyrotomies at St. Bartholomew's Hospital. Chloroform preferred to ether on account of excessive secretion of saliva. Stress upon sponge round Hahn's tube being aseptic. Use of 5-per-cent. solution of cocaine to larynx after division of cartilage, to lessen hæmorrhage and reflex excitability. Sponge-cannula to be removed, wound dusted with iodoform and covered with gauze; patient should be kept on his side with the head low to facilitate flowing away of discharge and lessen risk of pneumonia. First two days nutrient enemata; on day following operation power of swallowing should be tested. *De Santi*, iv. D-107.

LARYNX, NEUROSES OF.

Sensory throat neuroses of the menopause vary in kind and intensity; paræsthesia most frequent. Sensations experienced variously described as irritation, burning, choking, strangulation, etc. Neuralgic sensations described as fixed pain on one side of the throat. Often the *only* sign of the approaching menopause or may precede it. *F. Semon*, iv. D-93.

In 17 cases of syringomyelia one-half showed modifications in sensibility or motor power; in 4 reflexes abolished; in 7 paræsthesia or anæsthesia; in 5 paralysis of a vocal cord. Sensory disturbances more frequent than motor disturbances. *Cartaz*, iv. D-94.

PHONATION AND LARYNGEAL PARALYSIS.

CENTRE OF PHONATION. Corroboration of earlier researches of Krause, Semon, and Horsley. Extirpation of centres had no effect on mobility of vocal cords. Even after induced infection of centres there was no implication of function whatever. *Klemperer*, iv. D-78.

Experiments showing existence of centres for ab- and ad- duction of cords. Inability to produce isolated movements of opposite vocal cord by stimulation of corresponding areas in opposite hemisphere. *Risien Russell*, iv. D-78.

Unilateral irritation of Krause's centres by mild induced currents causes adduction of vocal cords. Bilateral extirpation of these centres causes abolition of barking in the dog; but reflex adduction preserved and laryngeal nerves remain intact, proving that all fibres taking part in adduction of vocal cords come from medullary centre, and not directly from cortical centre. Abolition of barking persists some weeks; insensibly power returns, centre being probably reproduced from neighboring parts uniting with other centres taking part in the act; Krause's centre simply that of active adduction of vocal cords. *Broeckaert*, iv. D-78.

Region whose preservation makes phonation and adduction still possible and which lies with the posterior corpora quadrigemina at the uppermost part of fourth ventricle for a length of eight millimetres. *Onodi*, iv. D-78.

Phonation-centre acts in an analogous way with centres for masticating and swallowing. Fibres followed from cortex downward to the internal capsule and subthalamic region, —the site of the co-ordination centre for chewing and swallowing. *Réthi*, iv. D-79.

Effect upon the voice and other motor disturbances observed as a sequel to ablation of the posterior corpora bigemina not due to lesion of deeper-lying structures; posterior corpora bigemina are themselves the centres for said movements. *Bechterew*, iv. D-79.

PARALYSIS OF THE LARYNX. Thirteen out of thirty-nine cases of recurrent paralysis in which epiglottis showed an abnormal action during quiet breathing,—narrowing, bending, or twisting toward one or the other side. During phonation there was a spasmodic action toward the healthy side in 27 per cent. Superior and inferior laryngeal nerves differently distributed to the epiglottis in different individuals, explaining

varying movements of epiglottis. *Roemisch*, iv. D-98.

Case of recurrent paralysis in which epiglottis had its posterior surface directed toward the right. *Treitel*, iv. D-98.

Left recurrent paralysis due to carcinoma of the mediastinum. *Schadewaldt*, iv. D-98.

After division, on stimulating peripheral end of the recurrent laryngeal nerve in the rabbit a movement of swallowing is performed, if its three branches are successively stimulated from above downward; œsophagus contracts in three sections. *Lüscher*, iv. D-99.

Case proving that tabes may give rise to paralysis in the larynx of the same transitory nature as the paralysis of the muscles of the eye during the preataxic stage. *Mendel*, iv. D-99.

Five cases of laryngeal paralysis in typhoid fever, 4 in males. Paralysis of dilators in 1 case, of recurrent in 3 cases, of both recurrents in 1 case. *Lublinski*, iv. D-99.

Case of isolated paralysis of the left lateral crico-arytenoid muscle following influenza. *Onodi*, iv. D-99.

Case of bilateral paralysis of abduction of the vocal cords in which later acute laryngeal symptoms were evidently due to an intercurrent inflammation. *Whistler*, iv. D-99.

Case of paralysis of the adductor muscles of the left vocal cord, including left half of arytenoideus muscles, and without alteration of crico-thyroid muscle. *Augieras*, iv. D-100.

Two cases of partial one-sided ankylosis, with increased compensatory action of the opposite side. *Wm. Porter*, iv. D-100.

Two cases of laryngeal paralysis in which, by turning the head strongly to the disabled side, a decided increase in the tone of the voice occurred. *Ray*, iv. D-100.

Case of laryngeal paralysis of left vocal cord in the cadaveric position with transitory melancholia of five years' duration. At autopsy fifteen or sixteen small tumors found in the cerebrum, malignant papillomata. No evidence of pressure upon pneumogastric or spinal accessory. *Hunter Mackenzie*, iv. D-100.

Case of large mass of malignant glands in the neck, with paralysis of the corresponding sympathetic nerve and immobility of the same side of the larynx. *Butlin*, iv. D-100.

HYSTERICAL APHONIA. Paralysis of the arytenoid due to usual causes—cold, etc. —may recover suddenly, as in hysterical aphonia. Latter may supervene upon an old case of unilateral adductor paralysis, in which only weakness of the voice was present. *Merrick*, iv. D-94.

Case of hysterical aphonia and deafness in which return of the voice and appearance of deafness occurred alternately. *Trifiletti*, iv. D-94.

Case of hystero-traumatic aphonia. *Bianchi and Massei*, iv. D-95.

TREATMENT. Case of hysterical aphonia in a young man. Depressed fracture of the skull at the age of 12 years, since which patient has been an emotionable subject. Voice restored by laryngeal electrode, a strong current being used. *Mulhall*, iv. D-95.

[Application of electricity to the larynx may be rendered much less disagreeable by using water as an intermediate conductor between the electrode and the mucous surfaces. The patient having taken a "mouthful" of water—about an ounce—is told to throw his head backward, to open his mouth, and to half-swallow the water, causing the fluid to fill the pharyngeal cavity. The point of the electrode is simply immersed in the water, and the external electrode, thoroughly wetted in salt water is applied over the thyroid cartilage. The current is then closed and kept so as long as the patient can hold his breath. Useful in all neuroses of palate, pharynx, and larynx. C. E. Sajous, Ed., iv. D-95.]

Voice may frequently be restored by impressing the patient with the idea that something very serious is going to be done, and suddenly thrusting forefinger behind his soft palate, as if searching for adenoid vegetations, causes a reflex cry, taken advantage of to order patient to count in a loud voice. *Michelsen*, iv. D-95.

LARYNGEAL SPASM. Twenty-three unpublished cases,—twenty-one males, two females. Disorder of adult life,—40 to 50 years. Almost every case due to peripheral excitation of the superior laryngeal nerve (enlarged uvula, pharyngitis, etc.). *Garel and Collet*, iv. D-96.

Case of laryngeal ictus quickly relieved by antipyrin. *Merklen*, iv. D-96.

Case of primary isolated laryngeal ictus. *Leclerc*, iv. D-96.

In 20 cases of glottic spasm in children, rachitis absent in 4, slight symptoms in 8, pronounced symptoms in 3, and severe rachitis in 5 cases. Spasms may occur in the absence of rachitis. *Masucci*, iv. D-97.

Laryngeal spasm in two adults; clinical picture evidently but a modification of the one ordinarily found in spasmodic asthma. *Brush*, iv. D-97.

"Neuromotor disorders" an appropriate term for functional disturbances which attack the larynx from remote locations through the nervous system and without the presence of any material lesion in the organ itself. *Raugé*, iv. D-97.

LATERAL CURVATURE OF SPINE.

See Scoliosis.

LEAD NEUROSES.

ENCEPHALOPATHIES. In a fair proportion of cases many symptoms attributed

LEAD NEUROSES (continued).

to lead, anæsthesia, hyperæsthesia, etc., may be more successfully treated by bromides than iodides. *A. E. Roussel*, ii. A-36.

Case of chronic lead poisoning with cerebral disturbance, terminating in suicide. *Denarié*, ii. A-36.

Convulsive form represents at least two-thirds of cerebral manifestations of lead poisoning and causes greatest mortality. *Stewart*, ii. C-49.

Cases of paræsthesia of external cutaneous nerve, or Bernhardt's paræsthesia. *Bernhardt*, *Devic*, *Bellot*, ii. C-50.

PARALYSES. Paralytic form presents the usual aspect of hysterical paralysis. *Soupault and Ramond*, ii. C-32.

Case of a little girl who suffered from paralysis due to lead poisoning after sleeping in a freshly-painted bed. *Newmark*, ii. C-32.

Case of alcohol, tobacco, and lead toxæmia. Paralysis of lower limbs. *Axtell*, ii. C-32.

Case of a little girl of $10\frac{1}{2}$ years and her two brothers, aged 3 and 6. Symptoms those of poliomyelitis. *Sinkler*, ii. C-32.

Two attacks at three years' interval. In first paralysis of left arm, disappearing in four months. In second no paralysis of limbs, but irregular pulse and slight paralysis of facial nerve. *Janowski*, ii. C-32.

Case of facial paralysis due to lead poisoning. *Tarkowski*, ii. C-32.

LEAD POISONING.

Case due to mastication of unfinished rubber. *Coutts*, i. D-57, 58.

Case due to water taken from kitchen-boiler. *Caton*, i. D-58.

Fatal case in phthisical patient due to administration of $\frac{1}{8}$ grain lead acetate daily for eighteen days, 1 drachm in all having been taken. *Israel*, i. D-58.

Buccal patches, slaty in appearance, due to localization of lead in red and white cells. *Guyot*, i. D-58.

Alimentary glycosuria present in at least 55 per cent. of cases of saturnine colic. *Brunelle*, i. D-58.

Case presenting multitudinous concomitant symptoms. *Janowski*, i. D-58, 59.

TREATMENT. Excellent results in twenty cases from monosulphide of sodium, $4\frac{1}{2}$ to 6 grains dissolved in glycerin twice daily; continued two weeks if necessary. *Peyrou*, i. D-59.

LEPROSY.

PATHOLOGY. Organism most readily detected in pus of ulcers; in that of bulbar eruptions or permanent blisters; in blood of local leprous lesions and general circulation; in fragments of skin or subcutaneous nerves. *Bailly*, iv. A-36.

Bacilli of leprosy mainly found in the cells; may also penetrate nerve-tubes, in which case myelin and cylinder-axis disappear. In the cells bacilli multiply and there finally form small, brownish, globular masses. Softening then begins, degenerative evolution of which thus differs decidedly from the caseous degeneration of tubercle. *Lie*, iv. A-36.

Opinion that leprosy steadily diminishing in Iceland apart from any repressive measures erroneous. *Ehlers*, iv. A-36.

Urine of lepers much less toxic than normal urine. *Chatinière*, iv. A-36.

A case in which the prick of the fin of a living fish in the West Indies was followed by leprosy in a Caucasian subject. Evaristo Garcia is of the opinion that process of resorption of phalanges in the nervous leprosy of tropical South America perfectly comparable to the process of destruction of the bones in the tabetic. *Ashmead*, iv. A-37.

Chaulmoogra-oil a drug of unquestionable value in the treatment of leprosy. *R. H. L. Bibb*, iv. A-37.

Europhen successful when given a long time every day or every other day subcutaneously. ℞ Europhen, $7\frac{1}{2}$ grains; oil of sweet almonds, $2\frac{1}{2}$ drachms. Filtered and sterilized during twenty-four hours. *Goldschmidt*, iv. A-37.

LEUCOCYTHÆMIA.

Case of true leucocythæmia associated with cancer. *Lannois and Regaud*, i. K-20.

Fatal case in infant in which spleen was found to weigh $7\frac{1}{4}$ ounces. *E. Bitot*, i. K-20.

TREATMENT. "Marvelous" result in a marked case under raw bone-marrow spread on thin slices of bread as food. Anæmia, splenic enlargement rapidly decreased. *Bigger*, i. K-20.

Similar results. *McPherson Lawrie*, i. K-20.

LEUCODERMA.

Cases of a father and his three children afflicted with leucoderma. Mother alive, but shows evidence of the disease. *Atmaram*, iv. A-37.

LEUKÆMIA.

ACUTE. Disease of adolescence. Prostration, hæmorrhage, petechiæ main symptoms, besides those due to tardy involvement of hæmatopoietic organs, swelling of glands and spleen, etc. Lasts two weeks to four months; fatal. *Fraenkel*, i. K-21.

Increase of leucocytes and eosinophile cells. Micro-organisms in great number in blood and enlarged organs. *Hintze*, i. K-21.

Karyokinetic changes in leucocytes, besides great number of them. Marrow of long bones showing hyperplastic multiplication of medullary elements, that of ribs containing small number of nucleated red corpuscles. Possible indication that evolu-

LEUKÆMIA (continued).
tion of young lymph-cells into red corpuscles impeded. *Askanazy*, i. K-21, 22.

Probably only two or three well-authenticated cases of acute leukæmia in literature; important to report each case. *Cabot*, i. K-22.

CHRONIC. Mitotic increase of certain leucocytes, usually myelocytes, from causes unknown. Division takes place in lymphoid organs, especially liver, new cells entering blood by lymph-channel. *Hindenburg*, i. K-23.

Two cases in which true peptone absent, the blood and serum containing deutero-albumose. *Matthes*, i K-23.

A disease of lymphatic organs, latter containing elements not found in the blood. *Gumprecht*, i. K-23.

Case of myelogenic leukæmia in which erythrocytes presented numerous mitoses. *Pick*, i. K-23.

Study of 600 cases suggesting that factors so far indicated in reality but predisposing causes, the origin of disease being in the digestive tract,—*i.e.*, an auto-intoxication by toxic albuminoids. *Vehsemeyer*, i. K-23.

Special transparent polynuclear leucocytes found in healthy osteomyelitic individuals. *Tschistovitsch*, i. K-23, 24.

Also found, but in remarkably increased quantities, in case of leukæmia. *Georgievski*, i. K-24.

Case following a blow in the abdomen. *Churton*, i. K-24.

Case of leukæmia transformed into lymphadenoma. *Lion*, i. K-24.

Case of leukæmic priapism with cessation of sexual excitement, autopsy showing that the corpora cavernosa had become transformed into homogeneous connective tissue. *Kast*, i. K-24.

Case of leukæmic bulbar paralysis. *Kast*, i. K-24.

TREATMENT. Bone-marrow, 1½ to 3 ounces daily. *T. K. Alexeiew*, v. A-20, 21.

LICHEN.

PILARIS. Case in a healthy boy of 6 years. Symmetry of its distribution would rather point to a trophic disturbance than to a parasitic origin. Washing with resorcin, salicylic soap, or application of Vlemingkx's solution. *Allan Jamieson*, iv. A-37.

PLANUS. Blood should be examined. Bullæ in case described containing no eosinophile cells, but latter found in the blood. *Leredde*, iv. A-38.

Case of acute generalized lichen planus covering entire body and both upper and lower extremities. On the arm many arranged in form of circles. *H. R. Robinson*, iv. A-38.

Grayish striæ and puncta to be found believed to be of use in making diagnosis; no exception as yet met with. *Wickham*, iv. A-38.

RUBER ACUMINATUS. Lichen ruber identical with pityriasis rubra pilaris of the French. *Kaposi*, iv. A-38.

SCROFULOSORUM.

TREATMENT. Recovery in a child treated by codliver-oil inunctions. While latter replaced by vaselin and zinc-oxide ointment progress of recovery had ceased. *Feulard*, iv. A-39.

Codliver-oil certainly possesses decided local action. *Besnier*, iv. A-39.

LIDS, DISEASES OF.

ANKYLOBLEPHARON. Case of bilateral congenital hereditary ankyloblepharon in twins. *Hall*, iv. B-44.

CHANCRE. Nine cases of chancre of eyelids and conjunctiva. *Snell*, iv. B-45.

CILIARY BLEPHARITIS. Excellent results from applications of an ointment of bismuth loretinate with a sufficient quantity of olive-oil rubbed on eyelashes with small wad of cotton-wool. *Nicati*, v. A-37.

ECTROPIUM. Case of ectropium treated by modified Dieffenbach operation. (See cut.) *Oliver*, iv. B-48.

ENTROPIUM. Series of cases of entropium and ptosis successfully operated by Gillet de Grandmont's methods. *Bourgois*, iv. B-52.

Severe forms of entropium and trichiasis; transplantation of strip of skin into intermarginal space of lids. *Knapp*, iv. B-47.

Entropium: cauterization of lid parallel to margin to depth of cartilage. Ectropium: same procedure to conjunctival surface. *Kuhn*, iv. B-47.

LYMPHANGIECTASIS. Case of bilateral lymphangiectasis of eyelids and conjunctiva. *Emery*, iv. B-44.

ŒDEMA. Case of unilateral palpebral œdema as initial symptom of general multiform exudative erythema; recovery by compress-bandage and sodium salicylate. *Bourgon*, iv. B-45.

PHTHIRIASIS. Twenty cases of pediculi ciliaris in 20,319 clinical cases. *Schwenk*, iv. B-44.

Phthiriasis of eyelids in children not so uncommon as thought. *Baudouin*, iv. B-44.

PTOSIS. Paralytic ptosis treated by modification of Birnbacher's operation. *Peschel*, iv. B-52.

Case of binocular congenital ptosis and immobility of globe. *Ahlstroem*, iv. B-43.

Case of unilateral congenital ptosis in baby, complete at birth, later on partial. *M. P. Jacobi*, iv. B-43.

SYMBLEPHARON. Case of symblepharon following lime-burn; pedicle graft from temple sewed to ball. *Chambers*, iv. B-46.

Case of successful skin-grafting for sym-

LIDS, DISEASES OF (continued).

blepharon caused by removal of epithelioma. *Gasparrini*, iv. B-46.

Case of traumatic symblepharon; free and extensive incisions can be made into conjunctival membrane to obtain sufficiently broad and loose flaps to entirely cover raw and open surfaces. Necessity of allowing sufficient interval of time between various procedures. *Oliver*, iv. B-47.

TRICHOPHYTOSIS. Two cases of blepharo-ciliary trichophytosis; no improvement until epilation performed. Eyelids ordinarily able to resist invasion; greater virulence of parasite due to its coming from lower animals. *Mibelli*, iv. B-44.

TUMORS. Congenital tumors of upper lids and temporal regions usually seen in neurotic individuals; frequently accompanied by facial paresis, lack of development, nævi, and other abnormalities. *Israel*, iv. B-43.

Case of calcified squamous tumor of upper lid. *Braquehaye and Sourdille*, iv. B-45.

Method of operation used for removal of epithelioma involving lids at outer commissure. (See cut and text.) *Oliver*, iv. B-49.

Case of epithelioma of lower lid; removal; success; plastic operation. *Weathered*, iv. B-50.

Removal of lower lid; modification of Dieffenbach's operation. *Siklossy*, iv. B-50.

Case of fibroma of eyelids in individual subject of multiple fibromata; growth diffuse and involving both lids; upper lid overhanging lower as far as inferior orbital margin. *Goode*, iv. B-46.

Case of melanotic sarcoma of upper lid following contusion of lid with ecchymosis. *Fromaget and Cabannes*, iv. B-46.

WOUNDS. In wounds of the lids different injured components to be carefully sutured. *Gayet*, iv. B-46.

MISCELLANEOUS. In Thiersch's epidermal grafts tissue to be transferred directly from razor to surface; operated lid to be fastened by ligatures. *Hotz*, iv. B-48.

In blepharoplastic operations cicatricial tissue can be used for flaps when previously prepared; before Thiersch's graft is applied the wound should be perfectly glazed; tears not to be allowed to run down to graft; after second or third day dry dressings best. *Keyser*, iv. B-47.

Czermak's operation of canthoplasty modified; forceps removed and incision made immediately after suture passed through thickness of lid. *Heddaeues*, iv. B-48.

In plastic operations about eye ether best general anæsthetic; cocaine only suitable local anæsthetic. *Zimmerman*, iv.B-46

LINGUAL TONSIL.

Out of 120 cases of more or less intense lesions of the lingual tonsil, dental and buccal lesions found in thirty-five cases. *Raoult*, iv. D-55.

Case of pre-epiglottic follicular tonsillitis; sharp pains, increased on swallowing; chill, high fever; lingual tonsil much swollen, red, covered with muco-purulent secretion; epiglottis inclined backward and exceedingly œdematous. Follicles of lingual tonsil covered with small white masses,—the picture of typical follicular amygdalitis. Rapid improvement. *Polyak*, iv. D-55.

TREATMENT. New curette, the shaft of which follows in outline the shape of the tongue, to facilitate the removal of growths in glosso-epiglottic space. *Winckler*, iv. D-56.

General treatment directed toward such conditions as syphilis, scrofula, neurasthenia, and chlorosis. Locally brushing with glycerin solution of iodine, nitrate-of-silver solution 10 to 20 per cent., or pyroligneous vinegar and menthol 50-per-cent. solution, etc. For individual swollen follicles, fused chromic acid, solid nitrate of silver, or trichloracetic acid. In more pronounced hypertrophy, galvano-caustic point or snare. Recurrence frequent; should be combated by means of iodine. *Kronenberg*, iv. D-56.

Two cases of sublingual phlegmon accompanied by serious general phenomena and tendency to asphyxia, resembling Ludwig's angina. Incision in median line through suprahyoid region best. Early intervention imperative. *Henri Blanc*, iv. D-56.

LIVER, DISEASES OF.

Certain toxins, when introduced through portal vein, acquire increased virulence in the liver. *Teissier, Guinard*, i. C-57, 58.

Toxic products, when absorbed in large quantity and for some time in intestinal putrefaction, may cause certain forms of hepatitis. *Hanot, Rovighi*, i. C-58.

Intestinal antisepsis not really efficacious unless it is hepato-intestinal. *Hanot*, i. C-57, 58.

ABSCESS. Case in which pus withdrawn was absolutely sterile. In all such cases but one, symptoms gradual, and not acute. *Longuet*, i. C-68, 69.

Two cases following tropical dysentery and having given pure cultures of staphylococci. *Boinet*, i. C-69.

Tropical abscess rarely primary affection; in all but one in forty cases post-mortem evidences of dysentery found. Solitary case recovered. *Macleod*, i. C-69.

Case due to duodenal ulceration caused by extensive burns, pus containing ordinary micrococci. *Hehir*, i. C-69.

Case illustrating biliary origin of certain areolar abscesses of the liver. *Widal and Griffon*, i. C-69, 70.

Case in which abscess gave passage to thirty gall-stones. *Covert*, i. C-70.

Suppurative hepatitis infrequent in early life; symptoms same as in adults. *Tschernow*, i. C-70.

Care not to mistake affection for pleurisy. *Hanot*, i. C-70.

No local pain in hepatic abscess, except in rare instances. *Tschernow*, i. C-70, 71.

Case simulating ulcer of the stomach. *Texier*, i. C-71.

Case of peritonitis in connection with unruptured hepatic abscesses. Ascribed to gas accumulation. *Blaker*, i. C-71.

Case of multiple abscesses secondary to acute general peritonitis. *Nason*, i. C-71.

Case of pyoperihepatitis with tuberculous angiocholitis. First case recorded. *Monnier*, i. C-71.

Abscess in which pus showed tubercle bacilli. *Churton*, i. C-71.

TREATMENT. Case in which hepatic abscess followed amœbic dysentery. Amœbæ in the pus and in evacuations. *Curnow*, iii. C-24.

Complete operation at one sitting, regardless of adhesions. Iodoform gauze, properly packed around drainage-tube, to prevent leakage into peritoneal cavity until adhesions take place. *Forsythe*, iii. C-24.

Abdominal or plural cavity should be carefully shut off from seat of puncture by stitching parietal peritoneum, or opening made through chest-wall, pleura, peritoneum, and diaphragm to surface of liver. *Pantaloni*, iii. C-25.

Abscess following dysentery should always be opened freely as soon as existence has been determined. Incision eight to ten centimetres. Curetting continued with a long curette, employing continuous irrigation until water flows out clear. Hæmorrhage never observed in forty cases reported. *Fontan*, iii. C-25.

CIRRHOSIS.

ETIOLOGY AND PATHOLOGY. Hereditary predisposition an important etiological factor. *Kabanoff*, i. C-62, 63.

In many supposed alcoholic cases, disease due to gastro-intestinal fermentation. *Boix*, i. C-63.

Hypertrophic cirrhosis with chronic icterus of an infectious nature. Leucocytosis always observed, though extra-hepatic inflammation absent. *Hanot, Meunier*, i. C-63.

Seven cases in children, but with hypertrophy of spleen, peculiar to cases commencing in childhood. *Gilbert and Fournier*, i. C-63.

In India a fatal form prevails among infants under 1, rarely after 3 years. Almost entirely limited to native children, rich or poor. *Jogendro Nath Ghose*, i. C-63, 64.

Peculiar to Brahmin children. Possibly due to habit of women in childbed to use strong decoction of black pepper as drink. *Mackenzie*, i. C-64.

Microscopical examination in twenty cases illustrating irregularity of connective-tissue proliferation; its production of atrophy by encircling cells. Connective-tissue proliferation the primary change. *Sieveking*, i. C-65.

No proliferation of connective tissue in the spleen. *Sieveking, Hohenemser*, i. C-65.

Elastic tissue takes active part in hepatic cirrhosis. *Hohenemser*, i. C-65.

Case presenting marked proliferation of connective tissue and round cells in the vicinity of portal vein and gall-ducts. Central veins and liver-cells normal. *Faber*, i. C-65, 66.

Case in which there was hypertrophy in one lobe, atrophy in the other. *Griffon*, i. C-66.

Cases in which hæmatemesis consisted sometimes of red and sometimes of black blood. *Hanot, Thomas*, i. C-66.

Case complicated by numerous lymphatic varices of abdominal wall. *Hanot*, i. C-66.

Case with extreme thickening and contraction of mesentery, simulating a tumor. *Benham*, i. C-66.

Case in which cancer was grafted upon cirrhosis. *Galvagni*, i. C-66.

Pleuritic effusion over the liver in Laënnec's atrophic cirrhosis a constant symptom. *Villani*, i. C-67.

TREATMENT. Two cases apparently checked by tapping. *Lauenstein*, i. C-67.

FLOATING LIVER. Case in which portion of liver partly constricted off, and, remaining attached by a peduncle, gave rise to movable tumor. Removable with the gall-bladder; good recovery. *Bastianelli*, iii. C-26.

Case in which diagnosis of tumor of large intestine made, with atrophic cirrhosis. Laparotomy showing liver entirely prolapsed and suspensory ligament entirely destroyed. Convex surface freshened and sutured in contact with parietal peritoneum. Two years and nine months later patient seen. Liver fixed to abdominal wall by extensive adhesions. *Lanelongue and Faguet*, iii. C-26.

ICTERUS. Case supposed to establish infectious character of jaundice. *Banti*, i. C-58.

Infectious icterus due to a proteus infection. Doubts concerning Banti's new bacillus. *Jaeger*, i. C-59.

Fatal cases showing influence of tuberculosis in causing icterus. *Knight, Köster*, i. C-59, 60.

Case showing analogy between Weil's disease due to proteus and icterus neonatorum. *Bar and Rénon*, i. C-60.

Fatal case in syphilitic-icterus infant, but due to proteus. *Bar and Rénon*, i. C-60.

Case confirming existence of serious hypothermic icterus due to bacterium coli with lesions of acute yellow atrophy. *Auché, Coyne*, i. C-61.

LIVER, DISEASES OF (continued).

Case of grave icterus with hypothermia in which the staphylococcus, and not the coli bacillus, was present. Fever in former; none in latter. *Hanot*, i. C-61.

Cases illustrating differential diagnosis between syphilitic and simple form. Syphilitic form sudden and preceded by digestive disturbances; digestion remains good, though distaste for fats. Appears with first eruption; most frequent in women. *Lasch*, i. C-60.

Fatal case in secondary syphilis. *Roque and Devic*, i. C-60.

Procedures for the detection of bile-pigment in icteric fluids. *Hedenius*, i. C-61.

TUMORS. Case in which infiltrating tumor of right lobe caused elongated process extending below level of umbilicus. *J. B. Roberts*, iii. C-27, 28.

Similar case, abscess suspected. Liver enlarged and studded with tumors and crater-like scars. Looked like syphilis. One of the tumors removed. Patient recovered rapidly under specific treatment. *Abbe*, iii. C-28.

CANCER AND SARCOMA. Certain cases of hepatic cancer closely resemble terminal stages of heart disease. But in latter slighter diminution of urea and albuminuria present, whereas absent in cancer,—main differential points. *Hanot, Flu*, i. C-72, 73.

Two cases of trabecular cancer accompanied by cirrhosis. *Fussell, A. O. J. Kelly*, i. C-73.

Case of cancer in which detached portion caused symptoms of lithiasis; obstruction caused jaundice; glands of hilum gave rise to circulatory symptoms, while consecutive cirrhosis further complicated the case. *Gilbert, Claude*, i. C-73.

Case in which cancer was only recognized post-mortem, owing to absence of all usual symptoms. *Dupont*, i. C-73.

Case in which there was slight glycosuria, urobilinuria, diminished urea, and increased toxicity of urine. *Sacaze*, i. C-73.

Case in which cancer developed with great rapidity, causing death ninety days after initial symptom. *Bonnevie*, i. C-73.

Case of melanotic sarcoma in which liver weighed 13 pounds 10 ounces. *Codd*, i. C-73.

Case of supposed primary melanotic sarcoma in which normal structure of liver had almost entirely disappeared. *Holsti*, i. C-74.

HYDATID CYST. Resounding sign described by Santini a valuable diagnostic point. Uniform in single cyst, varying when a number present. *Fiaschi*, i. C-72.

Cases in which cyst opened through gall-bladder. *Bruchanow, Medwedjewa*, i. C-72.

Case in which cyst opened into bladder. *Henczynski*, i. C-72.

Cyst containing pneumococci. *Galliard*, i. C-72.

Cyst containing bacillus of Eberth and echinococcus at first, then the bacterium coli. *Burci*, i. C-72.

TREATMENT. Portions of the liver removed by operation speedily replaced and parts renewed perform their function normally; surgeon justified in removing, when necessary, even large portions. *Von Bergmann*, iii. C-23, 24.

TRAUMATISMS.

RUPTURE. Diagnosis difficult; symptoms arise late, while danger greatest during first twenty-four hours. Small wounds may produce severe hæmorrhage. Laparotomy, suture of liver, Paquelin's cautery, and tampon. *Zeidler*, iii. C-27.

Case of a boy run over by a cart. Walked at least one-fourth mile after accident. Great pain, pulse full; no external signs of injury. On fifth day action of the bowels, severe abdominal pain, collapse, and death. A fissure three inches deep in liver. *T. Bryant*, iii. C-27.

Case after severe contusion. Incision, penetration into cavity; about a quart of reddish fluid evacuated. Patient convalescent. *Lyonnet and Jaboulay*, iii. C-27.

Case in which laparotomy showed that a revolver-ball had traversed liver. Wound closed up; patient, though diabetic, rapidly recovered. *Gangolphe*, iii. C-27.

YELLOW ATROPHY. Essential anatomical changes: a fatty degeneration and necrosis of liver-cells, produced by several different infections, of which syphilis may be one. *Meder, Marchand, Huber*, i. C-62.

LUDWIG'S ANGINA.

Statistics of 58 cases; 44 were in men, 9 in women, 5 in infants; oldest patient, 66 years; youngest, 3 months; 40 per cent. occurring between 20 and 30 years; recovery in 33 and death in 25. Bacteriological examination: streptococcus pyogenes found in 4; staphylococcus pyogenes aureus and albus in 1; erysipelas coccus in 2. In 1 instance an undetermined microbe resembling bacillus coli communis. *James E. Newcomb*, iv. D-41, 42.

Case in which progress of symptoms was at one time exceedingly rapid, trismus remaining intense for several weeks. *H. Ripault*, iv. D-42.

Fatal case of Ludwig's angina arising from an inflamed carious tooth. *E. Hughes*, iv. D-42.

LUNGS, UNCOMMON DISEASES OF.

(See also Tuberculosis of the Lungs; Pneumonia; Pleurisy; Empyema; Pneumothorax; Bronchitis; Asthma; Adenitis, Peribronchial.)

ACTINOMYCOSIS. Case in which infection derived from a carious tooth, disease having lasted over two years. Pus has a characteristic smell. Sputum often flesh-colored or like blackberry-jelly. *Aschoff*, i. A-93, 94.

Case of primary actinomycosis. *Heusser*, i. A-94.

Case in which severe actinomycosis of the lungs simulated advanced phthisis; diagnosis made by examination of the sputum. *Bérard*, i. A-94.

ANTHRACOSIS. Anthracosis of the lung not a specific disease peculiar to miners; condition simply pulmonary tuberculosis modified by the special circumstances of the case. *Tripier*, i. A-94, 95.

CALCULUS. Two cases of broncholith in pulmonary tuberculosis in young women. Koch bacillus present in sputum. *Vasilin*, i. A-92.

Decalcified pulmonary calculus, showing (1) rectilinear bacillus with tendency toward an arched or undulating form, tapering at one extremity; (2) a coccus in twos, sometimes in threes, with clearly-rounded grains. *Létienne and Galippe*, i. A-92.

Case of pulmonary calculus voided during severe coughing spell. *A. J. Downes*, i. A-92.

Pulmonary calculus causing attacks simulating spasmodic asthma. *Ruderow*, i. A-92.

CONTUSIONS. Hæmothorax, pneumothorax, emphysema, common in severe cases. Symptoms: shock, collapse, dyspnœa, profuse hæmoptysis, sonorous râles, absence of vesicular murmur, amphoric breathing, and metallic tinkling. Recovery follows if lesions remain aseptic; they usually do, even if hæmothorax and pneumothorax present. Symptomatic treatment. If hæmorrhage persistent, dyspnœa and cardiac embarrassment increase, aseptic aspiration to diminish pressure. If cannula clogged with clotted blood, operation as for empyema to turn out clots. *Parmenter*, iii. B-32.

DISTOMUM. Case of pulmonary distoma, parasite proving to be an enormous hepatic distomum two and one-half centimetres long. *De Gouvéa*, i. A-95.

FOREIGN BODIES. Greater frequency of foreign bodies in right bronchus due to fact that right bronchus always runs more in a line with the trachea than the left. *Kobler*, iii. B-33.

Case in which a bean had become lodged in trachea. Immediate tracheotomy, incision continued farther down than usual. Small catheter. Oxygen to lessen cyanosis. Bean removed with tracheal forceps from right bronchus. *Stewart*, iii. B-35.

Grain of corn in the bronchus for nearly a fortnight, expelled, by inducing cough, through tracheotomy wound. *Crommelin*, iii. B-33.

Foreign body impacted in left bronchus for forty-six days. *Morgan*, iii. B-33.

In the absence of pathological symptoms experimental attempts at extraction are not indicated, but patient must remain under medical observation. *Kobler*, i. A-91.

Autopsy in which one-half of a pea-nut found impacted in left bronchus. Infants should not be given this variety of nut, which is light, smooth, and slippery, in circuses, theatres, etc., where laughter is indulged in. *W. Moser*, i. A-91.

Fatal case of tamarind-stone in the right bronchus. Necessity of keeping the tracheotomy wound open until foreign body expelled. *A. B. Wade*, i. A-91.

HYDATID CYST. Hydatid cyst in a boy aged 14. Diagnosis in early stages difficult. Presence of hooklets or membrane in expectoration diagnostic. *Vespa*, i. A-92, 93.

Similar case in which some of the membrane was coughed up, symptoms afterward improving. Case in which two intact echinococcic cysts voided after emetic; quantity of fluid with membranes and cysts expelled, after which all the symptoms vanished. *Lamarque*, i. A-93.

Table showing relative proportion of patients admitted into hospital suffering from hydatid disease. Case simulating pyopneumothorax. *Coupland*, iii. B-25.

TREATMENT. In suspicious cases expectoration should always be carefully examined. In cases of long standing and area of dullness large, indicating large and tense cyst, aspiration distinctly contra-indicated. Fatal cases too numerous to justify risk of flooding lungs. Free opening into cyst. Weight of opinion against irrigation. Resection of rib not always necessary. Large hydatids can easily be expelled through opening of diameter of interosseous space, while ribs kept apart. *Chapple*, iii. B-25.

When advisable to open hydatid cysts of lung, surgeon should take advantage of adhesions and establish further adhesions if those existing not sufficient to enable operator to wash out cavity. *Péan*, iii. B-27.

Pneumonotomy best treatment in hydatid cyst of lung. *Réclus*, iii. B-27.

When hydatid cysts of lung open into the pleura, abundant antiseptic irrigations of latter sometimes dangerous on account of presence of pleuro-bronchial fistula; but they are, in general, useful. Free drainage to provide for easy evacuation of pus. *Troquart*, i. A-93.

HYPERTROPHIC OSTEO-ARTHROPATHY. Not a pathological entity like acromegaly, but a symptom-group often coincident with chronic lung affections, rarely with diseases of other organs and with syphilis. *Davis*, i. A-95, 96.

Improvement in one case after drainage of antecedent empyema. *Moussous*, i. A-96.

LUNGS, UNCOMMON DISEASES OF (continued).

Considerable improvement in a patient treated by subcutaneous injection of tissue-extract from the lungs of healthy sheep. *Desmons and Binaud*, i. A-96.

Case of unrecognized empyema with adherent pericardium; extreme and permanent collapse of the lung, with consecutive dorsal curvature; nutrition and development carried on under double disadvantage of serious heart disease and impaired oxygenation of the blood. *Springthorpe*, i. A-96, 97.

LEPROSY OF THE LUNG. Case of leprosy of the lung in which the bacilli of the disease found at several different times in the sputum. Several tuberculous cavities due to Koch's bacillus, also present. *Riehl*, i. A-95.

TUMORS.

CANCER. Little reliance can be placed on color, consistence, or form of sputum in the diagnosis of pulmonary neoplasm. Two cases of sarcoma. Diagnosis during life arrived at by section of particles found in the sputum. *E. Betschart*, i. A-89.

Thorough examination of every organ and tissue in a case to ascertain if there were any evidences of cancerous development in other parts. All organs found normal. *Loomis*, i. A-89, 90.

Case of primary broncho-pulmonary cancer, with compression and thrombosis of superior vena cava, hydrothorax, and cerebral ictus. *Léopold-Lévi*, i. A-90.

Case in which microscopical examination showed neoplasm to be a round-celled sarcoma rapidly degenerating. Practically impossible to establish a diagnosis in early stages. *G. V. Poore*, i. A-90.

TREATMENT. Pneumonectomy permissible in exceptional cases, neoplasm extending from thoracic wall to lung; but abstention in most instances preferable. In primary cancer of lung should be positively abandoned. *Réclus*, iii. B-27.

Solid tumors should be extirpated when superficial, taking advantage of adhesions when any exist and establishing adhesions when those present not of sufficient extent. *Péan*, iii. B-26, 27.

Cases cured by pneumonotomy. *Jonesco*, *Doyen*, iii. B-27.

SARCOMA. 1. Most frequent intra-thoracic tumor, sarcoma. 2. Most frequent point of origin the anterior mediastinum, in particular the remnant of the thymus gland. 3. In growths of anterior mediastinum physical signs prominent; those of middle and posterior mediastinum, symptoms predominate over physical signs. *William Pepper and Alfred Stengel*, i. A-90.

WOUNDS OF THE LUNG. In cases of hæmorrhage following traumatism, intervention should be practiced more frequently than it is. Traumatic hæmorrhage can often be arrested by tampons. *Quénu*, iii. B-27.

Best to wait and see if hæmorrhage not spontaneously arrested before operating, or until symptoms of infection evident. *Delorme*, iii. B-27.

Mortality from effusion of blood of pleuro-pulmonary origin at least 50 per cent.; surgical intervention therefore justified. Lungs extremely tolerant of traumatism. *Michaux*, iii. B-27.

Absolute immobilization. Wounded left in place where injury received or in immediate neighborhood, on mattress, avoiding least movement. Clothing cut away; wound washed with antiseptic tampon and occluded with iodoform or salol collodion, after suture. Patient must be prevented from moving, speaking, gesticulating, and, if possible, coughing, expectorating, or swallowing. If agitation and suffering, morphine hypodermically; if depression after severe hæmorrhage, injections of artificial serum alternated with injections of caffeine. Syncope favors hæmostasis. *Didier, Huguet and Péraire, Terrier and Lucas-Championnière*, iii. B-28.

Rise of temperature in cases of hæmothorax following wounds of lungs leading to suspect purulent infiltration, but which, nevertheless, necessitates no surgical interference. *Tuffier*, iii. B-28.

Case in which ball penetrated lung and became encysted without slightest accident. Second case in which the bullet entered above liver, re-appeared under the skin, and was easily extracted, but serious hæmo-pneumothorax, which became suppurative, and costal resection necessary. Gaseous, fluid effusion does not necessarily call for intervention. Hyperpyrexia, dyspnœa, and small pulse the symptoms which call for it. *Folet*, iii. B-28, 29.

Case in which signs of hæmothorax appeared on fifth day, and soon after secondary hæmorrhage from internal mammary. Absorption, followed by recovery. *Lorain*, iii. B-29.

Case in which great dilatation of abdomen occurred day following revolver wound of chest. Found to be an accumulation of gas in the peritoneum through perforation in diaphragm. Death. *Reverdin*, iii. B-29.

Case of perforating wound of right pleura one and one-half inches long, through which air whistled freely. Lung was quite collapsed. Wound thoroughly cleaned with 1 in 40 carbolic lotion, care being taken to prevent any entering pleural cavity. Wound sewed up at once, drawing skin over wound in pleura; firm dressing of cyanide gauze and alembroth wool. Complete recovery. *House*, iii. B-29, 30.

Case of abscess following traumatic rupture of the lung, in which cavity, as large as

child's head, filled; masses of gangrenous lung-tissue safely evacuated. Irrigation of such cavities with solutions of thymol dangerous; physiological salt solution or boric-acid solution recommended. *Maydl*, iii. B-30.

Case in which bullet, instead of penetrating soft pleural surface, remained in contact with it, forming depression in neighboring bone. *Nazim Chereffedin*, iii. B-30.

Wounds caused by contusing bodies, by stabbing and cutting, and by gunshot bullets of small and medium calibre usually heal well. Danger due to multiplicity and extent of wounds, and to lesion of important neighboring parts. Too hasty exploration or attempt to extract projectile inadvisable. *Péan*, iii. B-30.

Case in which Postempski's thoracoplastic method of treating diaphragmatic hernia due to sword-wound. Flap from fourth to eleventh rib. Collapse of lung, hernial protrusion consisting of omentum and transverse colon; omentum and sac removed, gut returned, peritoneum and diaphragm sutured with catgut. In three weeks perfect lung-expansion. *Llobet*, iii. B-30, 31.

Case of diaphragmatic hernia due to knife-wound, in which sutures placed during deep expiration; wound otherwise out of reach. *Schlatter*, iii. B-31.

Cases of diaphragmatic hernia treated by section of ribs and suture of diaphragm. *Ballerini*, *Rosini*, *Saraiva*, *Manara*, *Sorrentino*, iii. B-31, 32.

LUPUS.

LUPUS ERYTHEMATOSUS DISSEMINATUS. Case in which lesions upon hands and arms disappeared during pregnancy, leaving atrophic spots surrounded by pigmented zone. In a second case eruption likewise disappeared, but came back after confinement. *Fordyce*, iv. A-39.

Case of wide-spread erythematous lupus illustrating the value of iodide of starch. One drachm thrice daily, gradually increased to 4 drachms thrice daily. *McCall Anderson*, iv. A-39.

LUPUS VULGARIS.

ETIOLOGY AND PATHOLOGY. Inoculation of tubercle bacillus from without as an ordinary cause of lupus not accepted. Far more probable that parasite exists during long periods in state of latency, from which any local injury may rouse it into activity. Case in which boil, by reducing the vitality of the skin, made it an early prey to the parasite. *J. Hutchinson*, iv. A-39.

Case of lupus vulgaris of the scalp. But three such cases recorded. *Neisser*, iv. A-39.

Case of tuberculous lymphangitis associated with lupus vulgaris. *Purdon*, iv. A-40.

Case of lupus of the tongue; presence of numerous connective-tissue cells in a state of hyaline degeneration, most exceptional in lupus. *Darier*, iv. A-40.

Healthy human cell resists action of parasites; can only be attacked where it is weakened. To strengthen vitality of cells, cantharidinate of soda or of potash most valuable. *Liebreich*, iv. A-40.

Case in which facial erysipelas extended to some patches of lupus, latter completely disappearing. *Wassiliew*, iv. A-40.

TREATMENT. To prevent recurrences and production of cicatrices. Insertion into diseased parts of small needles of wood, having remained for several days in following solution: ℞ Corrosive sublimate, 15 grains; salicylic acid, 2½ drachms; sulphuric ether, 6½ drachms; olive-oil, 2 ounces. Pain can be avoided by local anæsthesia. *Scharff*, iv. A-41.

Extensive lupoid infiltrations of face, arm, and thigh cured by extirpation followed by skin-grafting. This method should be preferred to all others. *Lang*, iv. A-41.

Surface of ulceration bathed with alcohol, then with ether or concentrated aqueous solution of carbonate of potassium. Ointment of equal parts of lanolin, vaselin, starch, and parachlorphenol then applied, allowed to remain on from ten to twelve hours, removing it with dry cotton, then applying a salicylated or iodoform ointment. Two days later second application of parachlorphenol ointment, and other applications at same interval. After the series ended, plaster applied for ten days, until end of reaction is reached. *Elsenberg*, iv. A-41.

Thyroidin appears to cause local reaction somewhat resembling that caused by tuberculin. *Gum Busch*, v. A-17.

LYMPHADENOMA — HODGKIN'S DISEASE.

PATHOLOGY. A coccus closely allied to, but not identical with, staphylococcus aureus found in cultures. Injected in a guinea-pig caused inflammatory changes in wide area around seat of inoculation, but nothing in internal organs. *Brigidi and Piccoli*, iv. E-4.

Bacillus found in the spleen of a woman suffering from generalized lymphadenoma, pure cultures of which, injected into a dog, caused a generalized lymphadenoma in this animal. *Delbet*, iv. E-5.

DIAGNOSIS. Two anomalous cases. In first case pain in both legs. Lymphadenomatous growth adherent to vertebræ. In second, gastric symptoms, suggesting cancer with lymphatic enlargement. At post-mortem lymphadenomatous growth of stomach with extreme overgrowth of fibrous tissue. Both treated with arsenic without benefit. *Mackenzie*, iv. E-5.

LYMPHADENOMA (continued).

TREATMENT. Good results from Fowler's solution injected into tumor and internally. *Lecq*, iv. E-6.

Two cases rapidly cured by Fowler's solution of arsenic, 5 minims three times daily, and 10 grains of quinine, twice daily. *Dreschfeld*, iv. E-6.

In advanced cases nothing promises so much as surgical interference. *Banker and Roope*, iv. E-6.

MALARIAL FEVER.

PATHOLOGY.

PLASMODIUM. The only break in the chain of evidence which would establish, beyond a doubt, the fact that malaria is caused by a specific micro-organism is the one criterion that the parasite has not, as yet, been successfully cultivated upon artificial media. *F. H. Rogers*, i. G-42.

Three varieties of malarial parasite: (1) the tertian; (2) the quartan; (3) the æstivo-autumnal. The specific action of quinine upon these three varieties is undoubted. Exerts its influence most strongly when parasite undergoing process of segmentation, before the entrance of the fresh segments into new red corpuscles, and is best administered just before paroxysm. *Thayer and Hewitson*, i. G-42 to 44.

Life-cycle of malarial parasite: (1) minute nucleated bodies free in the blood; (2) small intra-corpuscular bodies, presumed to be former which have become attacked or have attacked red corpuscles; (3) large intra-corpuscular amœboid bodies; (4) rosette bodies; (5) last mentioned outside blood-corpuscles becoming resolved into free spores; (6) intermediate forms, suggesting complete vital cycle. *Manson*, i. G-44.

Life-cycle of malarial parasite has never been absolutely demonstrated. Demonstration of endogenous formation of free, non-pigmented, hyaline, amœboid malarial parasite, proving that it is derived from the free pigmented form, and that it is consequently the primary form, or first stage in the vital cycle; establishes polymorphic character of hæmatozoön. *Ch. Lester Leonard*, i. G-44, 45.

Flagellate forms, only met with outside, escape from the circulation, as shown by Ross, through the mosquito as intermediate host. Parasites are able to resist destruction in the stomach of this insect and pass thence into the blood. On the death of the mosquito they are added to water or soil, and by that means carried into the human body. They must have some third form in which they can remain latent in the body until conditions favorable for their development occur. *Manson*, i. G-45.

Parasite forms hitherto unnoticed: 1. Pseudocytes in leucocytes found in a case of quotidian fever; spherical with distinct contour. 2. Leucocytozoa; round, grayish, faintly-granular bodies, in the blood of a continued-fever patient. 3. Large malarial crescents, 20μ to 22μ in length. 4. Intracellular crescents, 8μ to 10μ by 3μ to 4μ, one end stumpy and broader than the other. *Danilewsky*, i. G-46.

Malarial infection can be brought about in men by both intra-venous and subcutaneous injection. Inoculation with blood of a malarial man cannot reproduce the disease in a lower animal. *Di Mattei*, i. G-47.

URINE. During an attack of malarial fever urine is always more toxic than in the normal state. Degree of toxicity practically the same before and after the paroxysm. During paroxysm, however, greater increase in toxicity,—more than five times the normal. Toxic substance produced in malarial disease, which is eliminated in greater quantity during the febrile than during the non-febrile stage. *J. H. Kellogg*, i. G-47.

Urine voided in malarial fevers during the attacks is less poisonous than that emitted during apyrexia, which, in its turn, is more poisonous than normal urines. Urinary toxicity increases in proportion as febrile accesses recur. *Bottazzi, Pensuti*, i. E-77.

Renal elimination of nitrogenous and ammoniacal products increased. Excess of NaCl in the urine during chills also a diagnostic sign of malaria. *Von Limbeck*, i. G-47.

Increase of phosphoric acid in the first twenty-four hours of infection. *Picci and Bernasconi*, i. G-47.

In tertian cases uniform diminution in number of leucocytes during the febrile paroxysm noted. Maximum number found, as a rule, two or three hours after the chill; then progressive diminution until minimum number of leucocytes is reached at the end of paroxysm, when temperature is subnormal; number then rises somewhat, and during interval occupies a position about midway between the maximum and minimum. *J. S. Billings*, i. G-48.

Presence of a considerable number of granulations in the walls of the capillaries and smaller vessels of the outer layer of the pia mater. *Nepveu*, i. G-48.

COMPLICATIONS. In 1780 cases complications noted in 10.7 per cent.; on the whole, not grave in nature. Most prominent are: cardiac affections, enteritis, neuralgia, albuminuria, pleurisy, and rheumatism. Malaria promotes development of pulmonary tuberculosis. Relationship between malaria and typhoid fever due to the simultaneous presence of two pathogenic organisms. *J. M. Anders*, i. G-48, 49.

In malarial parts of Africa, Florida, and India, abortions are to labors at term as about one to two. Sterility more frequent

in malarial districts than in others; if women live too long in a malarial district the sterility will become permanent. *J. Weatherley*, i. G-49.

DIAGNOSIS. Chills differ very much in their etiology, but may be divided into two main groups: (1) those from sudden shock to the nervous system; (2) those from absorption of the toxic material formed by organisms. In so-called nervous chill, fever is absent. In second group there is always fever. The two great diagnostic points in malaria are the invariable association of the plasmodium of Laveran and the invariable curative effects of quinine. *Wm. Osler*, i. G-49, 50.

TREATMENT. 1. Solutions of quinine salts should be reserved for the attacks of fever. 2. The basic quinine hydrochlorate to be preferred as a prophylactic measure. 3. The compressed preparations should be absolutely rejected. 4. Two pellets or gelatin capsules containing 4 grains of hydrochlorate, one in the morning, one in the evening, before meal. *Dujardin-Beaumetz and Société de Thérapeutique of Paris*, i. G-50, 51.

[As a prophylactic, the quantity here recommended is efficient, and at times may be increased. The doses recommended by many authors (4 to 6 grains—0.25 to 0.40 gramme—daily) will frequently prove entirely useless. JUDSON DALAND, Assoc. Ed., i. G-51.

Valerianate of quinine as a prophylactic tried under strict surveillance in markedly malarious region. Of 30 soldiers 23 given the drug regularly; the 7 untreated suffered from fever, those treated remained entirely free. *L. Cendero*, i. G-51.

Temperature the guide. Fifteen or twenty grains of quinine in solution given during decline of temperature; repeated on the seventh, fifteenth, and twenty-second days without reference to temperature. *Williams*, i. G-51.

In recent neurasthenic cases recovery speedily effected by hypodermic injections of hydrochlorate of quinine, 9 to 15 grains. In cases of relapse, large number of injections required. *Triantaphyllides*, i. G-51.

While sulphate of quinine often without effect in congestion of the liver of malarial origin, cinchona gives good results when associated, in prolonged course of treatment, with arsenic, iron, and hydrotherapy. *A. Robin*, i. G-52.

Tablets of quinine frequently pass digestive tract without being absorbed; neutral tannate of quinine for prolonged use. *Aufrecht*, i. G-52.

[I heartily concur with Aufrecht, that quinine should never be given in the form of tablets. The ordinary pill of quinine—especially when sugar- or gelatin- coated—I have frequently discovered in the alvine discharges *unchanged*. I consider the bichloride of quinine the best and most soluble form. It may be given in *freshly-made* gelatin capsules, but the cachets of the French—concave, paper-like discs made of rice-flour—are the best. The finely-powdered bichloride of quinine may be placed therein, sealed, and, when dipped in water for a moment, becomes soft and semigelatinous and is readily swallowed. Two, five, or ten grains of this alkaloid may be taken at one dose, and without difficulty. It is important that the stomach should contain food, which aids in two directions: first, by preventing the quinine from coming into direct contact with the gastric mucous membrane, to which, when locally applied, it is an irritant, and, secondly, the presence of food excites the secretion of free hydrochloric acid, thus aiding in securing complete solution of the salt. After each dose of quinine it is desirable to administer 5 drops of pure hydrochloric acid well diluted, or to follow the practice of the profession in the South, by advising the use of lemons, oranges, or other fresh fruit, the organic acid in each accomplishing the same purpose. JUDSON DALAND, Assoc. Ed., i. G-52.]

All preparations of quinine employed hypodermically open to objections. Precautions should be taken that solution should not be too strong; a part of the body should be chosen where the cellular tissue is abundant; syringe and needle should be made aseptic by boiling in water, and injection should be made slowly. *Kelsch*, v. A-127.

Bimuriate of quinine the most desirable for subcutaneous injections. *Von Fleischl*, v. A-127.

Quinine administered in black coffee with a little alcohol added appears in urine in about twenty minutes. In suppositories containing from $1\frac{3}{4}$ to $15\frac{1}{2}$ grains of quinine salt and $1\frac{1}{4}$ drachms of cacao-butter will appear in urine within fifteen minutes. *Lemansky*, v. A-128.

In children hydrobromate of quinine of service in same doses as other salts of the alkaloid. Especially useful in nervous, excitable children. Solubility further promoted by association with antipyrin. *Comby*, v. A-128.

Malarial fever should be carefully distinguished from other kinds of fever before resorting to quinine. *James Harris*, v. A-128.

Number of cases of malaria, with an idiosyncrasy to quinine, in which methylene-blue led to rapid and complete cure. *Felix Arnstein*. v. A-129.

Case rebellious to quinine and arsenic which yielded to hydrochlorate of phenocoll,

MALARIAL FEVER (continued).
in doses of 9¼ grains three times daily. *Strizover*, v. A-123.

Guaiacol over the spleen—when quinine is not well-borne—as adjunct. *Kohos*, v. A-84.

Analgen in daily doses of 15½ to 31 grains, a few hours before the attacks. Ether-spray over the spleen if enlarged. *Moscucci*, i. G-52.

When migraine in children is an expression of chronic malaria, arsenic, in large doses, gives better results than any other remedy. *McKee*, i. G-53.

Asaprol seems to have an especial efficacy; from 4 to 45 grains, according to age, in twenty-four hours. *Moncorvo*, v. A-34.

Case of floating spleen following malaria. Laveran's plasmodia found. Six grains of sulphate of quinine three times daily, alternately with full doses of arsenic. Prompt improvement. *C. J. Proben*, i. G-53.

Acetanilid instead of quinine used in several hundred cases successfully; 2 to 6 grains according to age, twenty minutes before expected chill. *Brodnax*, i. G-53.

Pambotano (*Callandra Houstoni*) often successful when quinine and other remedies fail. Decoction of the root, 2½ ounces in eight doses within twenty-four hours, to an adult; half that dose to a child. *Crespin*, i. G-53.

In malarial hæmaturia, calomel, tincture of ferric chloride, arsenic, ergot, turpentine, and sodium hyposulphite preferred remedies, as shown by an investigation bringing one hundred and seven replies. *H. A. Hare and Wilmer Krusen*, i. G-53, 54.

[The failure to dwell upon the importance of quinine is evidently an accidental omission. This drug, in full antiperiodic doses, often produces brilliant results. JUDSON DALAND, Assoc. Ed., i. G-54.]

Brazilian lantana, a verbenaceous plant. Active principle of lantanine: In large doses, powerful antiperiodic, superior to quinine, being tolerated even by most delicate stomachs. Dose, 15½ to 31 grains during the day; best given in pills of 1½ grains. *N. Lugo-Vina*, v. A-102, 103.

If there is time before the chill, calomel, ¼-grain doses half an hour apart; then, according to age, 2 to 6 grains of acetanilid twenty minutes before expected chill. *Benjamin Brodnax*, v. A-4.

Does not agree with Brodnax as to efficacy, owing to prostration induced. *G. J. Monroe*, v. A-4.

MALARIAL ORCHITIS. Ointment composed of ½ drachm of guaiacol and 5 drachms of vaselin, painted over scrotum thrice daily. Immediate effect, intense burning, lasting about ten minutes. Pain of orchitis finally ceasing altogether. *Pietro Pucci*, v. A-85.

MALARIAL CACHEXIA. Recovery in two cases from injections of bone-marrow. *T. K. Alexeiew*, v. A-20.

MAMMARY GLAND, DISEASES OF.

Out of 525 in childbed only one-half could suckle thoroughly in the first two weeks. The development of the nipple bore a direct relation to the value of the breast as a secretory organ. *Wiedow*, ii. H-52, 53.

Verification of assertion previously made by Genoud, Etlinger, and others, that in the majority of cases the milk of perfectly healthy nurses contained staphylococcus albus, which explains the ease with which local abscesses may be produced by pressure. *Charrin*, ii. H-53.

At Nancy, in most carefully kept ward, there are septic germs which do not attain sufficient virulence to occasion serious puerperal accidents, but are capable of causing slight temporary febrile disturbances. *Rémy*, ii. H-53.

GALACTORRHŒA. Intra-canalicular injections of oil to induce glandular atrophy, to be repeated every day; method proposed by Claude Bernard. *Tailhefer*, ii. H-54.

HYPERTROPHY OF MAMMÆ. Case in which the left breast was nearly twenty-two inches and the right over nineteen inches in circumference, without increase in the fat. Second case of true hypertrophy of the mammæ recorded. *Zweifel*, ii. H-54.

Case in which, after first two labors, the breast temporarily became enlarged. Permanent enlargement after abortion during third pregnancy. Patient unable to walk without assistance on account of great weight and bulk of breasts. Latter successfully removed. Main histological features an excess of connective tissue, showing highly refractile, non-nucleated fibre-bundles, taking deep eosin stain. *J. B. Hamilton*, ii. H-54, 55.

Case of unilateral hypertrophy in which development had been very gradual (nine years). Breast successfully removed. *Sheen*, ii. H-55.

MASTITIS. Seventeen cases treated successfully by evacuation of the breast, partly by sucking and partly by a sort of massage by which the breast is compressed and gently rubbed in the direction of the nipple. *Kaarsberg*, ii. H-53.

Case of mastitis in a girl of 11 years, a form occurring in the newborn. Local applications of salol. *Comby*, ii. H-53, 54.

Inflammation of nipple and breast should be regarded as a progressive rather than a self-limited disease, arising in most instances from septic infection of the nipple. Bandaging advisable after mastitis, still-birth, and whenever weaning is necessary on account of mammary disorders. *Harris*, ii. H-54.

TUBERCULOSIS OF THE MAMMÆ. In a

case predisposed to tuberculosis by hereditary antecedents, bacilli remain inactive until awakened by some traumatism. They are then carried by leucocytes into the interstitial tissue of breast in the traumatized region. *Sabrazès and Binaud*, ii. H-55.

Above conclusions supported by *Fiorentini and Pavieti*, ii. H-55.

There may be direct infection from without, though this is highly improbable in most cases. Extension from surrounding structures the more common method. *Reerink*, ii. H-55.

Tumor may be small, movable, and, as a rule, painless. Nipple generally contracted, and enlargement of axillary glands often precedes appearance of tumor, even by some years. Growth of epithelial, intra-acinous origin. *Gaudier and Péraire*, ii. H-55, 56.

In two cases tumors varying from size of a pigeon's egg to that of a walnut. General nutrition good; no tuberculous history. Tumors and glands found to be typically tuberculous. Koch's bacillus in axillary glands. Inoculations negative. No local relapse. *Catellani*, ii. H-56

TUMORS.

ACTINOMYCOSIS. Two cases to all appearances primary in character, both following a blow. In first case nodules incised, pus evacuated; later, breast became hard; sinus formed, leading to a cavity containing characteristic granules. Whole breast removed. *Müller*, ii. H-56, 57.

CYSTS. Have no independent existence, and, with exception of galactocele, are all derived from either chronic mastitis, adenofibromatous or adenosarcomatous neoplasms, or epithelioma. *Boiffin*, ii. H-57.

Different cystic formations may exist; cystic epithelioma of the breast, cystic affection of Cooper, Réclus, Tillaux, and others. *Bagourd*, ii. H-57.

Case of nodular disease of the right breast, showing, in the galactophorous canals, staphylococci albus of attenuated virulence. Female dog inoculated and chronic inflammation resembling that of patient produced. *Gaudier and Surmont*, ii. H-57.

MALIGNANT GROWTHS. An oozing of blood from the nipple of a breast in which no appreciable change can be seen is a serious symptom; a precursor of the development of a dendritic epithelioma. Discharge may precede appearance of tumor several years. *Delbet*, ii. H-58.

Series of cases of cystic disease of breast, most of which had been diagnosed as cancerous. Such errors might be diminished by due care. *Bryant*, ii. H-58.

Removing pectorals, carefully dissecting away every particle of glandular and areolar tissue from the axilla, and also, if necessary, dividing clavicle and clearing out subclavian triangle, well repay for extra time and trouble demanded. *Arbuthnot Lane*, ii. H-59.

Less radical operation, but showing results far surpassing those previously reported. Fifty cases operated since 1889, with only three local recurrences (*q.v.*). *Halsted*, ii. H-60.

Objection to surgical intervention in carcinomatous mastitis in pregnant or nursing women; but when acute cancer developed in a woman in whom mammary glands are not in a state of activity, evolution of neoplasm much less rapid and operation should always be made. *Rochard*, ii. H-60, 61.

Responsibility of the surgeon does not end with the simple removal of the growth, Patients to be placed under best hygienic conditions and to be followed from year to year. *Powers*, ii. H-61.

To assist resolution of local tissues and prevent recurrence after operation, persistent use of bromide of arsenic recommended, beginning with $\frac{1}{40}$ up to $\frac{1}{10}$ grain, the smaller dose gradually increased. *Wight*, ii. H-61.

For inoperable cases, interstitial injection of salicylic acid. Local symptoms—hæmorrhages, sloughs, odors, pains, etc.—alleviated and general condition of patient improved. *Bernardt*, ii. H-61.

Interstitial injections of salicylic acid tried in seven cases; results far superior to those usually afforded by any other method of inoperative treatment. After careful antisepsis, injection of 15 minims to 1 drachm of a 6-per-cent. alcoholic solution of the acid, repeated seven to thirteen times. *Tofius*, ii. H-61, 62.

MANIA-À-POTU. See Alcoholism.

MASSAGE.

Experiments showing that massage leads to an increased glandular flow, from which it must follow that epithelial cells are roused to greater activity and that the inflow of blood is assisted. *Carlo Colombo*, v. A-166.

1. During massage of muscles flow of blood through them increased. 2. Immediately after cessation accumulation of blood occurs in massaged muscles, rapidly followed by increased flow through the muscles. 3. Massage of a considerable muscular area causes at first a slight rise in the general blood-pressure, followed by a fall that in some cases amounts to a fifth of the initial blood-pressure. *T. Lauder Brunton and F. W. Tunnicliffe*, v. A-166.

Improvement in technique of abdominal massage. (See text.) *Kümmerling*, v. A-167.

MEASLES.

ETIOLOGY AND PATHOLOGY. Klebs-Lœffler bacilli in the throats of ten out of

MEASLES (continued).
twenty-eight cases. None, save one case requiring intubation, showed any sequelæ or further manifestations of diphtheria. *Robert S. Adams*, i. H-68.

Case in which a varioliform eruption developed in a case recovering from an attack of measles. An eruption having same structure as pustules of variola may occur without involvement of epidermis, but simply through presence of bacteria in the capillaries of papillary body; thrombosis of vessels of the skin may occur without hæmorrhage. *Unna*, i. H-68.

Cutaneous gangrene in measles precedes or follows an ulcerative process; principally occurs in cachectic forms after disappearance of eruption. Three cases. *Mensi*, i. H-69.

Eighty-one cases of measles, many of which characterized by severe stomatitis. Whole buccal cavity involved; great salivation. *J. B. Marvin*, i. H-69.

Case of ulcerative stomatitis following measles which gave rise to series of infectious troubles, — fetid diarrhœa, double broncho-pneumonia, and suppurative osteomyelia. *Desbonnets*, i. H-70.

Four cases of measles complicated with muco-sanguineous diarrhœa. Children in same ward and almost simultaneously attacked; all died presenting symptoms of broncho-pneumonia. At autopsy, ulcerations of sigmoid flexure and rectum analogous to those of true dysentery. *Meslay and Jolly*, i. H-70.

Case in which erysipelas co-existed with measles. Measles exerted arresting influence upon erysipelas, which, in turn, was also favorably influenced by morbid process. *Janovski*, i. H-70.

SYMPTOMATOLOGY. Precocious sign at very beginning of affection. When subject is placed in dorsal decubitus, with lower limbs flexed, and abdominal palpation, peritoneal friction noticeable in certain limited regions in abdomen; would suggest possibility of exanthem upon peritoneal serosa, though doubtful. *Bolignini*, i. H-70.

Measles give rise to a mild pultaceo-erythematous stomatitis; may precede exanthem; always accompanies it and disappears with it, is insidious and latent, and serves as means of diagnosis in doubtful cases (measles or rubeola). *Comby*, i. H-69.

TREATMENT. Epidemic in a young girls' seminary, with 16 per cent. of acute lobar pneumonia. Digitalis in large doses. No depressing effect upon the heart. *Lomikovsky*, i. H-71.

In treating nasal passages as little force as possible should be used and strong preparations avoided. If hæmorrhages of the nose, peroxide of hydrogen a useful astringent. *C. C. Rice*, i. H-71.

When troublesome pulmonary symptoms and severe inflammation of the eyes, fluid extract of eucalyptus, in 5-drop doses. For eyes, solution of mercuric chloride (1 to 12,000), drop or two instilled twice daily and followed by washing with solution of borax in warm water. *Wills*, i. H-71.

Successful stamping out of broncho-pneumonia in a hospital. Child given sublimate baths; every sore, abscess, or crust of impetigo carefully dressed; nose and fauces irrigated several times daily with boric solution or boiled water; every child affected with broncho-pneumonia promptly isolated. *Hutinel*, i. H-72.

MEDIASTINUM, TUMORS OF.

DIAGNOSIS. Case of cough without expectoration. Increasing dyspnœa, cyanosis of face. Dullness from sternum to axillary line. Respiratory murmurs absent in this area and heart-sounds muffled. Mediastinal lymphosarcoma; verified at necropsy. *Thiele*, iii. B-34.

Growth in anterior mediastinum starting in the thyroid or remains of thymus. *Litten*, iii. B-34, 35.

Case of dermoid cyst of anterior mediastinum. *Dardignac*, iii. B-35, 36.

Case considered as aneurism of the aorta with paralysis of the recurrent shown at post-mortem to be a mediastinal carcinoma. *Schadewalt*, i. A-97.

Case of mediastinal growth. Early signs those of pleurisy on left side, blood-stained serum drawn off. Pain, dyspnœa, emaciation; three weeks before death paraplegia from pressure on cord at level of tenth dorsal vertebra. Mixed-celled sarcoma completely surrounding aorta, œsophagus, and trachea. *Short*, i. A-97.

Growth originating in posterior mediastinum, which had compressed main bronchus of each lung. Superficial veins of lower half of thorax dilated, also a large mass of glands in right supraclavicular fossa. *Foxwell*, i. A-97.

Case of malignant disease of thoracic mediastinal glands, with dilatation of descending aorta, marked cardiac intermission, and bradycardia. *A. E. Sansom, F. Tresilian*, i. A-97, 98.

Cases of mediastinal tumor. *Litten, Thiele, William Krauss, Drenkhahn, Karnik, William Watson*, i. A-98.

TREATMENT. Medical treatment may lead to retrogression. Arsenic best, iodide of potassium in increasing doses; syphilis always to be thought of. Resection of sternum as a last resort. *Millot Carpentier*, i. A-98.

MELANCHOLIA.

PATHOGENESIS. Generally traceable to two causes: first, a general (but unknown) somatic condition; second, a fixed idea or obsession. In the first category the expres-

sion of a cachexia usually found to be a sequel of some infectious fever. A second type (of intellectual origin); an idea or mental shock acting in such a way as to produce a psychical depression essentially similar to that found in cases of the first type. Melancholia has no existence as a mental entity; may be resolved into sensory processes. *George Dumas*, ii. D-26.

Abnormal action of the vasomotor nerves governing the muscular tension of the cerebral vessels may produce irregularity of the blood-supply to the various brain-areas, thus interfering with normal nutrition and functionation. *Hiram Elliot*, ii. D-27.

Three cases in which recovery took place after eleven, nine and a half, and seven years, respectively. All three presented symptoms usually considered of bad omen. *Neil*, ii. D-28.

In melancholia, acute and chronic, there is a marked deficiency in the number of hæmocytes; the percentage of hæmoglobin reduced in like proportion. In large majority of cases improvement follows administration of tonics,—iron, etc. *Whitmore Steele*, ii. D-28.

Blood of twelve cases showing marked diminution of globules. Hæmoglobin reduced in same proportion. Iron alone or combined with quinine and strychnine seemed to answer best. *Preston*, ii. D-28.

In asylums convalescence often delayed; all such cases best treated at home under competent physician and a good nurse. *Frank H. Stevenson*, ii. D-28.

Haphazard way in which patients suffering from melancholia are sent far sea-voyages, more especially those who have suicidal tendencies, condemned. *Blandford*, ii. D-29.

MELANOMA.

Case in which internal administration of arsenic followed by disappearance of tumor. *Lassar*, iv. A-41.

MENINGITIS.

CEREBRO-SPINAL. In 60 to 70 per cent. of recorded cases Fränkel's diplococcus lanceolatus found. Out of 10 cases, 2 in which there was definite pus-formation, diplococci present in enormous numbers; in those in which only fibrinous exudation existed micro-organisms scantier and found inside the nucleus of the cells. The "diplococcus intra-cellularis" the true cause of epidemic cerebro-spinal meningitis. *Jaeger*, ii. A-64.

Disease ordinarily associated with the pneumococcus, which is always present and frequently predominates. *Vigne*, ii. A-65.

Three cases in which the diplococcus of Fränkel was found in the blood, urine, and, in one of the cases, in the fæces. *Righi*, ii. A-65.

Bacteriological examination of the meningeal exudate in a case, showing, in the pus-cells, a special diplococcus distinguished from that of Fränkel by a globular form and a frequent disposition in fours, by its not staining by Gram's method, and by the difficulty of causing infection in animals when subcutaneously inoculated. *Kischevski*, ii. A-65.

Researches confirming those of Foà that infection occurs through milk. *Trambusti*, ii. A-65, 66.

Acute non-tuberculous meningitis following typhoid fever may be due to the bacillus of Eberth or to secondary infections by the bacillus coli, streptococcus, pneumococcus, and, rarely, the staphylococcus, without our bring able to differentiate clinically between these two groups. *Levillain*, ii. A-66.

Meningism in children closely resembles tubercular meningitis; localization and symptoms similar, but nature and termination different. Influenza the most frequent cause. *F. Comby*, ii. A-66.

Any organism in active state or under the influence of hysteria may cause symptoms of meningitis. In meningism, history of the case usually acute, onset accompanied by convulsions, brusque variations in thermal curves. Prognosis is favorable. *Paul Roesch*, ii. A-66, 67.

Seven cases of pseudomeningitis, six fatal, without anatomical lesions, following an epidemic of influenza. *Krannhals*, ii. A-67.

Case of encephalomeningitis from influenza. Bacteriological examination reveals no influenza bacilli. *Cornil*, ii. A-67.

Study of thirteen cases of meningitis from a bacteriological stand-point. Belief that non-tuberculous meningitis is nearly always due to the pneumococcus. *Maleschini*, ii. A-67.

Three cases of acute purulent leptomeningitis in nurslings in which bacterium coli commune was found in purulent exudates in all. *Franz Scherer*, ii. A-67.

TREATMENT. Hot baths, patient receiving in three days twelve baths in all, at 104° F. and of ten minutes' duration. Upon discontinuing, nocturnal headache and delirium re-appeared. *Aufrecht*, ii. A-67, 68.

Two cases in which method advocated by Aufrecht tried. Results most satisfactory. *Woroschilsky*, ii. A-68.

Case treated by sero-therapy. Slight return of symptoms on seventh and ninth days, but otherwise recovery uninterrupted. *Righi*, ii. A-68.

Subcutaneous injections of corrosive sublimate successfully used in nine cases occurring in an epidemic of influenza. Besides sublimate, leeches, ice, frequent purgations with calomel, and bromide or morphine to quiet the patient. *Consalos*, ii. A-68, 69.

Cerebro-spinal fluid easily drawn off by insertion of Pravaz needle between laminæ

MENINGITIS (continued).
of lumbar vertebræ slightly to one side of middle line. *Quincke*, iii. A-48.

Quincke's views as to value of procedure confirmed. Simple Dieulafoy needle may be used. In many cases favorable course certainly ascribed to puncture. *Von Ziemssen*, iii. A-48.

Space between laminæ of lumbar vertebræ best in children, but in adults space between last vertebra and sacrum best. *Chipault*, iii. A-49.

Lumbar puncture of diagnostic value, but not curative. *Bernard*, iii. A-49, 50.

Cases successfully treated by trephining and drainage of subarachnoid space. *Hirschberg*, *Greaves*, iii. A-50.

Satisfactory results in two cases from baths given daily, at 104° F., of ten minutes' duration. *Vorochilsky*, v. A-182, 183.

TUBERCULAR. Case showing that injury may possibly prepare the way for the entrance of the bacillus. If the symptoms of meningitis appear two or three days after injury, there can be no causal connection between them ; but in case cited interval was eleven days. *Schilling*, ii. A-69.

Transmission of tuberculosis through occupying apartment in which a person had died of the disease. *Batamnov*, ii. A-69, 70.

Tubercular meningitis in child 3 months old. *Rotch and Wentworth*, ii. A-70.

Fatal case of tubercular meningitis, in boy aged 4 years, in which infection proven to have come from cows' milk. *Sherman and Lambkin*, ii. A-70.

Tubercular meningitis from bad sanitary conditions. *Lockwood*, ii. A-70.

Tubercular meningitis presents no symptoms during the onset. The only sign is a disharmony,—viz., an irregularity (dissociation) of the respiratory movements of the diaphragm and the thorax, which sets in during the first days of meningitis. *Simon*, ii. A-70.

Case of hysterical meningism in a woman who presented all the symptoms of tuberculous meningitis without meningitis. *Huchard*, ii. A-70, 71.

PROGNOSIS AND TREATMENT. Case showing that recovery cannot be looked on as a reliable sign in distinguishing between various forms of meningitis. *Freyhan*, ii. A-71.

Case in which the diagnosis was established beyond a doubt, followed by recovery. *Fürbringer*, ii. A-71.

Therapeutic value of Quincke's lumbar puncture applicable for diagnostic purposes. ii. A-71.

Death in tubercular meningitis caused not by the development of tubercles, but by intra-cranial compression, by cerebral asphyxia. Rational treatment, therefore, is trephining and drainage. Case of recovery. *R. Hirschberg*, ii. A-71, 72.

Ultimate cause of death not studding of meninges with tubercles, but pressure on the brain resulting from fluid induced by these ; relief of pressure might procure chance for recovery. *Austin*, ii. A-72.

Recovery in tuberculous case after trephining. Operation would seem justifiable if only to relieve headache. Should be done before paralytic stage sets it. *James Kerr*, iii. A-50.

Though no case saved personally, temporary improvement procured renders operation distinctly justifiable. *D'Arcy Power*, iii. A-50.

Allusion to well-known successful case ; still well. Single tapping useless; continual drainage for ten to fourteen days essential, best secured through occipital bone by raising cerebellum. *Waterhouse* iii. A-50, 51.

Three cases unsuccessfully treated by subdural drainage. *R. H. Russell*, iii. A-51.

Experiments on dogs showing that by subdural injections of 1 in 4000 sublimate solution, tuberculous meningitis may not only be alleviated, but cured. *Mannotti*, iii. A-51.

Prophylactic measures when conditions likely to lead to meningitis, otorrhœa, etc., present. *Keay*, iii. A-51.

Temporary relief by trephining in a tuberculous case. *Merrill Ricketts*, iii. A-50.

Case in which puncture caused aggravation. *Lenhartz*, iii. A-48.

In tuberculous form, fluid drawn should be clear and contain tubercle bacilli; in suppurative form, turbid and purulent with pyogenic micro-organisms; in cerebral abscess clear and without micro-organisms; but there may be exceptions. *Stadelmann*, iii. A-48, 49.

Tubercle bacilli found in removed cerebrospinal fluid in twenty-seven out of thirty-seven cases, proving presence of tuberculous meningitis, afterward verified. *Fürbringer*, iii. A-49.

MENINGOCELE. See Brain, Diseases of.

MENOPAUSE.

PATHOLOGY. Out of 500 cases return of hæmorrhage, after menopause established a year or more, in 183. Cancer of cervix caused bleeding in 54 per cent. *Neumann*, ii. F-107, 108.

Disorders at all likely to be confused with fat accumulation after menopause : lipomata, dermoids, fibroids, tumors of abdominal wall, encysted peritonitis, hydatids of peritoneum, "ovarian tumors." *Manton*, ii. F-108.

Large unilocular blood-cyst, developing in wall of uterus after menopause. *J. C. Webster*, ii. F-108.

TREATMENT. Menopause a diverted trophic nervo-vascular force, a re-adjustment of nutritive forces, not life-endangering in itself. Treatment, when necessary, limited venesection, cactina, digitalis, strophanthus, strychnia, massage. *J. S. Nowlin*, ii. F-108.

Tachycardia of menopause. Solution of nitrite of amyl, 5 minims to the ounce of water, a teaspoonful every fifteen minutes until relieved. *Baldwin*, i. B-45.

MENORRHAGIA. See MENSTRUATION.

MENSTRUATION.

Evidence recently furnished by Heape justifying opinion that ovulation not the cause of menstruation. We should not speak of menstruation as occurring once a month, but as occupying a whole month. *Lawson Tait*, ii. F-101.

All evidence favors theory that ovulation and menstruation independent; ovulation in a modified form continues during pregnancy. *Byron Robinson*, ii. F-101, 102.

Study of over 3000 cases showing that earlier menstruation in tropical countries is not due to climate, but to too early sexual excitement. *Joubert*, ii. F-102.

Case of premature menstruation in child 5 days old. *D. L. Peebles*, ii. F-102.

Case in which a child began to menstruate at the age of 1 month. *Catchings*, ii. F-102.

Blood-pressure varies greatest at commencement of menstruation, least immediately after; remains about same height seventeen days, when it again begins to rise. Derangement of this cycle leads to various pathological phenomena. *A. W. Johnstone*, F-102.

AMENORRHŒA.

TREATMENT. Oxalic acid the surest and safest emmenagogue when chlorosis also present. ℞ Peptonate of iron, 1½ grains; peptonate of manganese, 2 grains; oxalic acid, 2 grains; alcohol, 3 fluidrachms; water, sufficient quantity to make 4 fluidounces. Sig.: 2 drachms three times a day. *H. C. Bloom*, v. A-117.

DYSMENORRHŒA.

PATHOGENESIS. One hundred, out of one hundred and twelve patients suffering from painful menstruation, found to have marked organic lesion of pelvic organs. Hence treatment must be directed toward causative disease. *Gardner*, ii. F-105, 106.

TREATMENT. In all forms, that of tubal origin the most painful. Treatment consists in encouraging the absorption of pelvic exudate by hot douches, suppositories —of ichthyol, 4 grains; cacao-butter, 31 grains—introduced every night before retiring. Massage if no collection of purulent, sanguineous, or serous fluid in tubes. In ovarian dysmenorrhœa, besides narcotics, ice or hot stupes over ovaries; gentle massage excellent when ovaries are bound down by adhesions. Ovarian neuralgia exceedingly difficult to cure, even castration often fails; advisable to favor marriage. In a type of dysmenorrhœa seen in young women suffering from anæmia or chlorosis, antipyrin or phenacetin, especially viburnum—latter in 1-drachm doses—five or six days before period. *Duveliüs*, ii. F-106.

For membranous dysmenorrhœa scarification of os at intervals of three or four days, between periods; just before flow cervix dilated, uterus thoroughly curetted, and spiral wire stem introduced; hot vaginal douches even when menstruating. *Duke*, ii. F-107.

Hot salt-baths calm the pains of dysmenorrhœa; notably diminish menstrual flow. *Mironoff*, v. A-178.

MENORRHAGIA. Hydrastinine in eighty-six cases; best results in simple menorrhagia, post-partum hæmorrhage, and in bleeding due to hæmatocele and disease of the adnexa. In chronic endometritis little effect; contra-indicated in pregnancy, in fibromyoma, and inoperable carcinoma. *Kallmorgen*, ii. F-105.

Cotarnine hydrochlorate, ⅜ grain in capsules five times daily for four or five days before the expected periods, and ⅞ grain four to five times daily during the periods. *Gottschalk*, v. A-59.

METRORRHAGIA. Case of incoercible metrorrhagia in which extirpated uterus showed interstitial endometritis. *Switalzki*, ii. F-103.

TREATMENT. Salipyrin in various forms of uterine hæmorrhage, in lozenges containing 15 grains each. *Orthmann*, ii. F-103.

Excellent results from the topical application of mixture of antipyrin and salol, equal parts. By filling a test-tube one-third full and applying heat, brownish liquid obtained. Applied with absorbent cotton to whole endometrium. Not painful. *Labadie-Lagrave*, ii. F-104.

Atropine sulphate ($\frac{1}{1000}$ grain) repeated with sufficient frequency to cause dryness of throat. In private cases subcutaneous injections. *Talley*, ii. F-104.

Ferratin, 7½ grains three times daily, recommended. *Lapkow*, ii. F-104.

Cotarnine hydrochloride by the mouth in doses ranging up to ¾ grain five or six times daily; sterilized 10-per-cent. watery solution; in profuse cases inject 3 grains (30 drops of solution) deep into gluteal muscles once a day. *Gottschalk*, ii. F 104, 105.

VICARIOUS MENSTRUATION. Prognosis in cases in which vicarious bleeding takes place through the lungs should be guarded; may be concealing beginning of an acute tuberculosis. Case proving point. *Kober*, ii. F-102, 103.

MENSTRUATION (continued).

Case in which a discharge from left breast occurs three days before menstrual period. First whitish, then bloody, finally yellowish. *Hancock*, ii. F-103.

Hæmorrhage from ulcer of stomach frequently dependent upon a menstrual period. *Kutner*, ii. F-103.

Vicarious menstruation usually shows a local trouble requiring treatment. *A. W. Johnstone*, ii. F-103.

MESENTERY, DISEASES OF.

EMBOLUS.

DIAGNOSIS. Case relieved by operation. Pilliet's theory that bacterial inflammation in intestine may start thrombus in the veins a most encouraging suggestion. *Elliot*, iii. C-94.

Symptoms fairly characteristic: (1) colicky, intense abdominal pain; (2) bloody diarrhœa; (3) subnormal temperature. Vomiting strengthens the diagnosis, as also abdominal distension and marked prostration. *Watson*, iii. C-94.

Case in which at autopsy embolism of mesenteric artery clearly defined, about two feet of small intestine necrotic. Extremely atheromatous condition of descending aorta. *Marcy*, iii. C-94.

Not uncommon to find embolism of mesenteric artery and gangrene of intestine in horses, even in young animals in otherwise healthy condition. *Frank S. Billings*, iii. C-94.

TUMORS. Ninety cases of tumors of mesentery so far recorded. Lipomata, malignant tumors, lymphangiomata, and cysts. Case of large cyst successfully removed. *Studsgaard*, iii. C-96.

Case from which forty-three inches of intestine removed for sarcomatous growth involving mesentery. Four months later intestinal obstruction and death from Murphy button arrested below anastomosis by intestinal adhesion. *Cauthorn*, iii. C-96, 97.

Tumor of mesentery, abdomen measuring nearly two metres in circumference. Generalized dullness on percussion, except in epigastric region, where resonance obtained. Exception to the rule, classical symptoms being general resonance. *Lathuraz and Leroyenne*, iii. C-97.

CHYLOUS CYSTS OF MESENTERY. Stenosis and obliteration of the thoracic duct probably the cause of numerous cysts. *Wenning*, i. D-64, 65.

Fatal case in which chyle-cyst of mesentery simulated intestinal obstruction. *Floersheim*, i. D-65.

Case of contracted and thickened mesentery simulating tumor complicating cirrhosis of liver. *Lucas Benham*, i. D-65.

Case of diffuse suppuration with multiple abscesses of liver, due to trauma. *Funkhouser*, i. D-65.

Case in which entire mesentery filled with globular bodies, varying in size from fœtal head to an orange, resembling hard-boiled eggs, minus shells. Removal impossible. Death from shock. Mesenteric veins and glands varicose and soft. *Wenning*, iii. C-97, 98.

TREATMENT. Cure by simple capillary aspiration in a case in which the neoplasm was situated below the umbilicus. *Tachard*, iii. C-98.

Four cases cured by laparotomy. *Brentano, Ullmann*, iii. C-98.

Case in which laparotomy had been performed for obstruction; nature of growth revealed at autopsy. *Reynier*, iii. C-98.

Simple aspiration at first, and, should this fail, laparotomy with fixation of sac to peritoneum. *Hochenegg*, iii. C-98.

Case in which puncture and evacuation led to recovery. This method is usually considered as dangerous. *Tachard*, i. D-65.

MICROCEPHALUS. See Idiocy.

MIGRAINE.

PATHOGENESIS. Causes of nervous headaches in children: asthenia; chronic indigestion; intellectual overwork; reading and writing by poor light; affections of nose, eyes, and ears. *Bresgen*, ii. C-14.

Every organ in connection with one or more external zones, to which pain is transmitted, and where integuments become sensitive. *Head*, ii. C-14, 15.

Subdivided into organic, reflex, toxic, and constitutional varieties. Treatment according to form. *Shibley*, ii. C-15.

Case attended by apparition of various bright lights, then darkness and general illness; finally, loss of consciousness and convulsions. Case of epileptoid hemicrania. *Wood*, ii. C-15.

Case in which hemicrania replaced by pain in epigastric region at intervals. *Bary*, ii. C-15.

Hemicrania in children generally traceable to hereditary antecedents. *Collignon*, ii. C-15, 16.

TREATMENT. Three forms: simple, ophthalmic, ophthalmoplegic. Important points in treatment: strict diet, rest after meals. Antipyrin. Trional Bayer. Salicylate of soda when of arthritic origin. Potassium bromide in ophthalmic and ophthalmoplegic forms. *Claus*, ii. C-16.

An auto-intoxication by uric acid. Soda phosphate, soda salicylate, Carlsbad salts, but especially potassium permanganate. *Rachford*, ii. C-16.

Case of ten years' standing cured with cannabis-Indica extract, $\frac{1}{6}$ grain thrice daily before meals, and increased three times by

$\frac{1}{6}$ grain every seven days. *Lockwood*, ii. C-16.

Recovery obtained in thirty-four sittings by static electricity. *Labbé*, v. B-6.

MISCARRIAGE.

See Abortion.

MOLLUSCUM CONTAGIOSUM.

PATHOLOGY. Exceedingly motile, flagellated corpuscles, of dimension of a red blood-corpuscle, observed with contents of papules. *Jackson Clarke*, iv. A-42.

Parasite of this disease a single-celled organism; probably a coccidium belonging to the class sporozoa. *Touton*, iv. A-42.

[The pathogenic agent of molluscum contagiosum is still unknown; nevertheless the affection is incontestably inoculable. L. Brocq, Assoc. Ed., iv. A-42.]

The adduced negative evidence as to contagiousness has no weight whatever. *Stelwagon*, iv. A-42.

TREATMENT. Case in which three hundred growths situated on the trunk removed with the dermal curette. Result very satisfactory. *P. A. Morrow*, iv. A-42.

MORPHINOMANIA.

The lower classes are also becoming subjects of this disease, mainly through subcutaneous injections administered in hospitals. *Hodée*, ii. E-20.

Thirty per cent. of morphinomaniacs physicians. Proportion even greater in the United States. *Mattison*, ii. E-20.

Morphinomania in an infant 4 months old. *Volfowitsch*, ii. E-20.

TREATMENT. Cases reported showing that sudden and complete withdrawal of the drug is not followed by deleterious results. *Ball*, *Gaillard*, *Hodée*, *Rendu*, *Hughes*, *Taylor*, ii. E-21, 22.

The violent diarrhœa and vomiting following sudden demorphinization are not usually harmful, being due to sudden removal of hepatic action, and the consequent elimination of bile probably containing stored-up morphia. Flow should be allowed to continue, but under strict medical supervision, lest bulbar asphyxia ensue. *Sollier*, ii. E-21.

Successful substitution of quinine. *Green*, ii. E-22.

Successful progressive reduction, in eight to ten days, in three cases. Sulphate of sparteine, subcutaneously, to counteract untoward symptoms. *Comby*, ii. E-22.

Encouraging results in a case from vigorous exercise. *Miller*, ii. E-22.

Successful course in 150 cases: gradual reduction, cessation being unperceived by patient. Proteid diet. Glycero-acid phosphate as nerve-food. For insomnia, milk in large quantity or trional; also warm bath with cold to the head. As sedative, valerianate of zinc with extract of belladonna. As tonics, glyceride of hypophosphites, iron, quinia, strychnia, maltine, coca-wine. Centric galvanization and general faradization. Special attention to rhythmic action of heart and tonicity of vascular system. *Mann*, ii. E-22, 23.

Essential to obtain control over patient. Cathartic. Alkaline water containing potassium bromide, carbonate, and acetate; no opium whatever, and symptomatic treatment. Prolonged hot baths to lessen severity of withdrawal of drug. Eserine gives best results as sedative. *Waugh*, ii. E-23.

Small doses of phosphate of soda in glycerin and water, hypoderm., morphia being decreased as the phosphates are increased. *Luys*, ii. E-23.

PROPHYLAXIS. Strict enforcement of laws governing the sale of opiates by druggists. Exposure of morphinomaniacs by registering in an open ledger the names of all purchasers of opium not presenting the prescription of a reputable physician. *Happel*, ii. E-23, 24.

MOUTH, DISEASES OF.

STOMATITIS, APHTHOUS.

PATHOLOGY. Of microbic origin. Bacillus cultivated from mouth and fæces of animals and shown to produce disease by inoculation. (Colored plate.) *Siegel*, i. C-1.

Case in human being showing analogous organism. *Winkelmann*, i. C-2.

Infection through milk from aphthous cows. *Petre and Renard*, i. C-2.

Three cases in infants showing same organism. *Bézy and Iversenc*, i. C-2.

Not of microbic origin. Presence of spherical bodies similar to malaria parasites. (Colored plate.) *Piana and Fiorentino*, i. C-2, 3.

Nothing else than herpetic stomatitis. *Marfan*, i. C-3.

TREATMENT. Frequent washing of mouth with saturated boric acid or 1 to 500 solution of carbolic acid. To ulcers: 5-per-cent. solution of nitrate of silver, or 1 to 500 solution of permanganate of potassium, or solution of iodine and iodide of potassium in glycerin and water. *Marfan*, i. C-4.

As prophylactic: bicarbonate of sodium in medium-sized doses three or four hours after meals. *Trussewitsch*, i. C-4.

If ulcerations membranous, local application of dried chloride of calcium. *Marfan*, i. C-4.

PERFORATING DISEASE. Affection of tabetic nature in which perforation of vault, necrosis, etc., occur. *Baudet*, i. C-4.

[Likely to be confounded with syphilitic manifestations. Ed.]

LYMPHATIC VARICES. Enlargement of buccal veins subsequent to erysipelas. *Du Castel*, i. C-4, 5.

PAPILLOMATA. Warty growths due to

MOUTH, DISEASES OF (continued).
contact with warts on fingers. *Rasch*, i. C-5.

SARCOMA. Of peridental membrane not rare and cut short by extraction of tooth. *Hopewell Smith*, i. C-5.

MOUTH-PRURITUS. Probably paroxysmal paræsthesia of mucous membrane. *Tommasoli*, i. C-5, 6.

MUMPS. See PAROTIDITIS.

MUSCLES, DISEASES OF.

ANTERIOR POLIOMYELITIS. Progressive atrophy. Progressive muscular atrophy—Duchenne-Aran type—a disease *sui generis*. Occurs much more frequently than is believed; there may also be a subacute form. *J. B. Charcot*, ii. B-6.

Affection undergoes a transition ending in unlimited amyotrophic lateral sclerosis. *Hammond*, ii. B-7.

[Charcot identifies anterior poliomyelitis with spinal muscular atrophy, and this justly; in both the anatomical results all the same and the clinical differences are unimportant, as all the intermediate varieties may present themselves. H. OBERSTEINER, Assoc. Ed., ii. B-7.]

Case of subacute form of progressive spinal paralysis consequent upon autointoxication. Case of chronic variety in hæmophilic patient of 54 years. *Orcel and Stourme*, ii. B-7.

All forms hereditary and found in several members of same family, and almost always in youth. *Bouchaud*, ii. C-36.

Case of traumatic atrophy affecting serratus magnus alone. *Debedet*, ii. C-37.

Case in which muscular atrophy most marked in rhomboidei and shoulder-muscles, but affecting likewise muscles of tongue, face, and external muscles of eyeball. *Rugh and Mills*, ii. C-37.

Case of muscular atrophy following enteric fever. *Lloyd*, ii. C-38.

Neuritis simulating progressive muscular atrophy, with nystagmus and increase of patellar reflexes. *Moyer*, ii. C-38.

Autopsy in case of atrophy of peronei muscles. Spinal cord, alterations of anterolateral group of multipolar cells, especially on left side; middle group less affected. Some sclerosis of white substance. *Krauss*, ii. C-38.

When changes are acute in nerve-cells there is consequent irritative alteration of neuroglia around them, as well as of that around fibres of white substance derived from them. *Dejerine*, ii. C-38.

Case of true progressive muscular atrophy. Opinion based upon fact that no such affection existed in any other member of the family; atrophy and impotence first affected the hands; patellar reflexes increased. *Ness*, ii. C-38, 39.

Eighty-three cases of scoliosis and muscular atrophy in sciatica. In addition to generalized trophic disturbances and muscular atrophies of sciatica, circumscribed or partial amyotrophies usually localized in gluteal region. *Phulpin*, ii. C-39.

Case of muscular dystrophy of facio-scapulo-brachial type in a young woman. *Sachs*, ii. C-39, 40.

Case of muscular degeneration, of traumatic origin. *Schnitzler*, ii. C-40.

Case of combined progressive paralysis and progressive muscular atrophy. *Shuster*, ii. C-40.

Case following influenza. Alterations seemed more marked in skin and subcutaneous tissues; bones affected to certain extent. *Berend*, ii. C-40.

ANTERIOR POLIOMYELITIS IN CHILDREN. [Literature concerning spinal paralysis in children rather more extensive. Case reported by Radtke interesting from the fact that the patient at 31 years is still able, notwithstanding very pronounced atrophy and paresis of lower extremities, to move about with the aid of the hands, and to work a sewing-machine, in doing which she uses the very limited power of motion in the legs. H. OBERSTEINER, Assoc. Ed., ii. B-7.]

Boys more frequently affected than girls (5 to 4); youngest child affected 3 months old. Most frequently appears during warm season. Infectious process principal etiological factor. *Frank Fischer*, ii. B-7.

Pathological changes such as to suggest notion of interstitial and vascular origin. *Trevelyan and Allen Starr*, ii. B-7, 8.

Generally begins in lower extremities (peroneal type); besides changes in muscles proliferation of interstitial connective tissue occurs with destruction of nerve-fibres in peripheral nerves. Degeneration of posterior columns and of anterior and posterior horns. *Marinesco*, ii. B-8.

Early infantile progressive spinal amyotrophy. Several children in same family become affected very gradually during their first year, beginning in thighs and pelvic muscles. (See text.) *Werdinz.* ii. B-8.

Epidemic of anterior poliomyelitis in Rutland, Vermont,—about 160 cases, at first supposed to be cerebro-spinal meningitis. Adults, children, horses, and birds not spared. *Dana*, ii. B-8.

Same epidemic. Majority of cases in children. Twenty-five per cent. cured, 30 per cent. improved, and 13 per cent. died. *Macphall*, ii. B-8.

Early use of electrotherapy in infantile spinal paralysis. Case, girl of 4 years, completely cured. *Heyberger*, ii. B-9.

Well-timed intervention arrests development of deformities. *De Forest Willard and Guy Hinsdale*, ii. B-9.

In almost all cases, persons who have suffered from infantile spinal paralysis show, later on, symptoms of acute or chronic myelitis, with paralysis and muscular atrophy, —principally poliomyelitis. *Pauly*, ii. B-9.

[That the symptoms presenting themselves in later years bear some causal relation to those of childhood seems undoubted. The manner of this relationship has not as yet been elucidated. H. OBERSTEINER, Assoc. Ed., ii. B-9.]

Syphilitic pseudoparalysis always occasioned peripherally, and is characterized by paralysis of extremities or cutaneous disturbances of sensibility, with pains in the bones. *Gonez*, ii. B-9.

THOMSEN'S DISEASE. Renders those affected by it unfit for military service. *Van der Stok*, ii. C-40.

Autopsy showing that initial lesion is a muscular hyperplasia, hypertrophy found mostly in muscles which perform greatest amount of work. A primary myopathy. *Dejerine and Sottas*, ii. C-40.

Case of man in whose family Thomsen's disease was hereditary. *Hollmann*, ii. C-40.

DUPUYTREN'S DISEASE. Case with autopsy. Fixed flexion of fingers due neither to shortening nor to articular adhesions; subcutaneous cellular tissue of palm of hand absent. In spinal cord gliomatous formation in region of central canal, some syringomyelia, and anterior poliomyelitis with chronic leptomeningitis. *Biegawski*, ii. C-40, 41.

MYCOSIS FUNGOIDES.

Case which simulated a chancre. *L. Wickham*, iv. A-42.

In the skin, which appears normal, alterations may be discovered with the microscope some time before they are evident clinically. *Leredde*, iv. A-42.

Fatal case of mycosis fungoides in a woman. *L. Roberts*, iv. A-43.

MYELITIS.

PATHOGENESIS. It appears (1) that an intimate relation exists between various infections,—separate forms of myelitis; (2) that all infections in their various stages of development may give rise to spinal-cord disease; (3) acute and chronic diffuse forms occur most frequently; (4) clinical course of infectious myelitis independent of nature of infecting agent. *Grasset*, ii. B-3.

Myelitis may occur long after infection, but always in an acute or subacute form. Certain infectious agents more liable to cause paralysis than others. Lesion in these cases always parenchymatous; affects particularly ganglionic cells of anterior horns. Alterations in nerve-fibres only occur later on. Neuroglia mostly remains unaffected; changes in vessels do not occur. *Vaillard*, ii. B-4.

[Upon this last point Vaillard differs from many of the later authorities; in a considerable number of cases, at least, a primary degeneration independent of circulatory disturbances can scarcely be admitted. H. OBERSTEINER, Assoc. Ed., ii. B-4.]

One hundred and sixteen rabbits inoculated with streptococcic cultures. In 6 per cent. paralysis manifested itself in from seven days to two months, ending fatally. Nerve-cells of anterior horns had undergone extensive alteration; lateral posterior columns showed degenerations; pronounced vascular lesions. No streptococci found. *Vidal and Bezançon*, ii. B-4.

In acute case spinal cord found to be softened in its dorsal portion. Streptococci found bacteriologically. *Oettinger*, ii. B-4.

Experiments with diphtheria bacillus: spinal cord and nerves particularly affected; bulb less so; brain not at all. *Crocq*, ii. B-5.

Symptoms of transverse myelitis two weeks after having been bitten by a suspected mad dog. Recovery. *Walter*, ii. B-5.

Three cases of acute diffuse myelitis following infection, in two of which micrococci clearly distinguishable in spinal cord. *Tanrelli-Salimbeni*, ii. B-5.

Case ending in recovery in a girl 12 years old. *A. Hall*, ii. B-5.

Case of bilateral optical atrophy in a woman suffering from acute myelitis. *Devic*, ii. B-5.

Case in which there was softening of lower portions of cord limited to region supplied by posterior spinal arteries. *Williamson*, ii. B-5.

In some cases of Pott's disease in which the vertebræ have, to all appearances, remained sound a sudden onset of the spinal-cord symptoms may be noted. *Chipault*, ii. B-6.

[Experimenters incline more and more to the opinion that the changes met with in the spinal cord in this affection are not the direct results of pressure occasioned by the diseased vertebræ, but are rather produced indirectly by œdema of the cord. H. OBERSTEINER, Assoc. Ed., ii. B-6.]

Two cases of compression myelitis in which the pressure was unmistakably exerted upon the cord by affected vertebræ. *Lechlenthner*, ii. B-6.

Two cases examined histologically; inflammatory processes in vessels of thickened pia mater, principally the veins. In second case, disseminated multiple myelitis. *Pfeiffer*, ii. B-6.

Case in which several days after gonorrhœal infection pains in legs, œdema, paraplegia with paralysis of sphincters occurred. Death in one month. Meningomyelitis in lumbar region, especially pia mater. No gonococci, but streptococci. *Barrié*, ii. B-6.

MYOCARDITIS.

ETIOLOGY AND PATHOLOGY. Besides disseminated, localized, indurative myocarditis, there is also diffuse fibrous degeneration of the cardiac muscle, to which, hitherto, little attention has been paid; this diffuse fibrous degeneration frequently much more marked in the walls of auricles than in those of the ventricles. *Radasewsky*, i. B-10.

Alcoholic drinks in any form may lead to myocarditis when used in excessive quantity. Proceeds very gradually; majority of patients well nourished and corpulent. Shortness of breath; pressure in præcordia, dyspnœa, and increase in the heart-dullness observed. *Aufrecht*, i. B-10, 11.

Two cases in which lesion was not generalized throughout entire myocardium. Occurred in districts, in a rather regular manner. Regions affected all about of the same dimensions. *Brault*, i. B-11.

TREATMENT. In acute myocarditis medicaments capable of restoring energy of the heart; digitalis indicated, except in pneumonia; caffeine should be used subcutaneously, from 3½ to 6 grains in solution, morning and evening. If pressure weaken, subcutaneous injections of ergotine. Cold baths, cautiously,—beginning with 82° F.; then, progressively, to 78° and 74° F.,—may be given, reducing them, finally, as low as 68° or 64° F. While the symptoms remain serious, baths every three hours, but never longer than ten minutes. *Roger*, i. B-11, 12.

MYXŒDEMA.

PATHOLOGY AND TREATMENT. Myxœdema certainly a possible and even a probable result of exophthalmic goitre. *Gowan*, iv. E-23.

Case showing, post-mortem, hæmorrhage into centrum ovale and aneurism of internal carotid, which during life had produced symptoms of myxœdema. *Codd*, iv. E-23.

Case in which, in addition to the characteristic symptoms, the whole of the front of the neck was occupied by a dense thickening of the skin, so that no thyroid gland could be felt. Cause of death cerebral syphilis. Case in which actinomyces destroyed the gland and caused myxœdema. *Köhler*, iv. E-24.

In two cases of congenital myxœdema figures as regards oxyhæmoglobin were 6 per cent. and 7 per cent. In a case of acquired myxœdema 6.5 per cent. *Masoin*, iv. E-24.

Case of paralysis of left arm and weakness of lower extremities with myxœdema. Statistics of Clinical Society of London show in 109 cases 14 cases of paralysis. *Chataloff*, iv. E-24.

Similarity of many of the symptoms of acute nephritis and myxœdema. *Starr*, iv. E-25.

Case presenting essential symptoms of myxœdema and considerable ascites. *Godard-Danhieux*, iv. E-25.

Case of myxœdema with symptoms simulating ovarian tumor. *Embley*, iv. E-26.

Sixteen cases of myxœdema treated with thyroid gland, in two of which exact estimates of metabolic processes made, metabolism of proteids found to be excessively small, proteids of food digested in a defective manner; when thyroid ingested, more nitrogen excreted and whole metabolism improved. *Vermehren*, iv. E-26.

In experiments upon three patients decrease of assimilation of nitrogenous principles observed; in one this assumed alarming proportions. *Dennig*, iv. E-26.

Decided emaciation observed in animals to which thyroid extract administered. In very obese and myxœdematous patients same result observed. *Charrin*, iv. E-26.

Myxœdema may result from (1) excess of thyroproteid; (2) deficiency of thyroidin; while thyroidism (exophthalmic goitre) may result from (1) deficiency of thyroproteid; (2) excess of internal secretion of thyroidin. Explains why enormous goitre may be compatible with health if the two substances are in proportion to maintain physiological equilibrium. *Révilliod*, iv. E-26.

Thyroidism due to two component causes: (1) a poisoning from absorption of putrid material; (2) a specific effect of the thyroid gland *per se*. *Lanz*, iv. E-27.

Lanz's views combated. Leichtenstern, by careful administration of thyroid in 162 cases, saw no permanent ill effects, and those which did occur were transitory. Thyroidism does not lie in the agent itself, but, by means of its influence on metabolism, products are formed inducing the condition. *Beeker*, iv. E-27.

Effect of thyroid extract in myxœdema complicated by angina pectoris beneficial. No discomfort until twelfth day, when extract discontinued. *H. C. L. Morris*, iv. E-27.

Good results with thyroid feeding in a desperate case. About 15 grains a day will suffice, and not expose patient to danger. On appearance of headache, vomiting, pain in the kidneys and increasing pulse-rate, all forms of thyroid extract should be discontinued at once. *J. J. Schmidt*, iv. E-27.

Treatment of acquired myxœdema in the adult almost universally successful. Where failure occurs, it is generally in inexperienced hands or the thyroid itself is not good. For a continuous good result treatment must be maintained, but, as the action of thyroid is cumulative, intervals of cessation, varying in different cases, are necessary. In winter larger doses and shorter intervals are necessary than in summer. Feeling of cold an indication to renew treat-

ment. One grain of powder cautiously increased. *Meltzer*, iv. E-27, 28.

Abuse of this treatment owing to the unrestricted sale of thyroid preparations, and especially tablets, condemned. Restrictions should be placed upon the sale of thyroid preparations. *Eulenberg*, iv. E-28.

[This is a well-timed warning, as thyroid tablets and extract have in them the elements of danger, the early signs of which are not likely to be appreciated by the laity. The dose (1 to 2 tablets three times daily) given on the labels of the original bottles in which the remedy is sold is, in most cases, too large. C. SUMNER WITHERSTINE, Assoc. Ed., iv. E-28.]

Benefits to be derived from thyroid feeding in myxœdema must not make us forget its dangers; thyroid juice poisons the heart and may cause death by syncope. *Béclère*, iv. E-28,

Toleration of thyroid medication does not depend upon volume of thyroid body, but upon its functional activity. Explains very variable effects observed. *Taty and Guérin*, iv. E-28.

CONGENITAL MYXŒDEMA; CRETINISM. Case of congenital myxœdema in which parental etiological factors are well shown. Parental neuroses and violent emotion main factors. *Bourneville*, iv. E-29.

In a case of congenital myxœdema treated with thyroid, diameter of red corpuscles before treatment began was 3.13μ; after, it was 7.5μ. Nucleated red corpuscles disappeared under treatment. Persistence of fœtal state of blood seems to coincide with tardy development of body. *Lebreton and Vaquez*, iv. E-29.

Many so-called idiots, imbeciles, cases of arrested development among children are cases of functional inactivity of the thyroid gland. Rheumatic symptoms and anæmia frequently aggravated. *Crary*, iv. E-29.

[I have observed the increase of anæmia and the aggravation of rheumatic symptoms mentioned above in a case of goitre complicated with rheumatism in which thyroid tablets were given. The tablets were discontinued and salicylates and iron substituted with good effect. C. SUMNER WITHERSTINE, Assoc. Ed., iv. E-30.]

Case of myxœdema in an infant 26 months old. Parents and child syphilitic. *Rie*, iv. E-30.

Two cases of myxœdema in children, one a girl 9 years old, the other a boy 12 years old, treated with glycerin extract of sheep's thyroid. Improvement. *Northrup*, iv. E-30.

Successful treatment of a case of infantile myxœdema with thyroid extract; entire loss of cretinoid aspect. *Osler*, iv. E-30.

Several children suffering from myxœdematous idiocy, in whom physical and intellectual conditions greatly benefited by thyroid alimentation. *Bourneville*, iv. E-30.

The growth of the patient, even if checked for a long time, is immediately recommenced with energy under influence of thyroid products. Nine observations. *E. Hertoghe*, v. A-15.

Under thyroid feeding improvement rapid and striking. *Zum Busch*, v. A-16.

NÆVUS.

NÆVUS LIPOMATODES. Case in a child, nævus reaching from upper part of the concha to the front of the neck, with two distinct patches of baldness on the scalp. *G. T. Jackson*, iv. A-43.

NÆVUS LUPUS. Case of infectious angioma or nævus lupus of the hand. Although certainly nævoid in part, patches not purely so, for their surface was rough and had a dry, adherent scale-crust. *J. Hutchinson*, iv. A-43.

[I cannot accept these new denominations of Hutchinson. I consider that patient can but suffer from one of two things: either she has true lupus—that is, a tuberculous inoculation of the skin—or she has not. If the first, it must be lupus developed on nævus; if the second, the term lupus (which has but a single meaning) should not be combined with the term nævus. L. BROCQ, Assoc. Ed., iv. A-43, 44.]

NASAL CAVITIES, DISEASES OF.

ANTERIOR CAVITIES.

ACUTE RHINITIS. In nasal and pharyngeal secretions certain luminous bodies which, under the low power at command, appeared to be spores; sodium bisulphite employed successfully. *C. M. Fenn*, iv. D-5.

Mentholated chloroform at 5 or 10 per cent. in inhalations; hands rubbed with a few drops and held before the nose and mouth; four to six deep breaths taken. *R. Wunsche*, iv. D-5.

At outset nasal cavities sprayed with a small quantity of 1 part of ichthyol and 100 parts each of ether and alcohol, to be made only once. *Unna*, iv. D-6.

Tumefaction relieved and secretion diminished by use of ℞ sulphanilic acid, 2 drachms; carbonate sodium, 4½ drachms; distilled water, 2 fluidounces. M. Sig.: Tablespoonful every hour. *Valentin*, iv. D-6.

CHRONIC RHINITIS. ℞ Coal-oil, ½ fluidounce; oil turpentine, ½ fluidounce; water, 8 fluidounces. Sprayed into the nose and throat with an atomizer. *J. H. Powell*, v. A-100.

Local application of solutions of salicylic acid of 1 in 1000 or 1 in 2000. *Chéron*, v. A-131.

ATROPHIC RHINITIS; OZÆNA.

PATHOLOGY. Uncommonness of unilateral form; coincidence of atrophic and

NASAL CAVITIES, DISEASES OF (continued).

hypertrophic rhinitis in eighteen cases out of eighty. *More*, iv. D-6.

Histological changes point to a lesion in the trophic nerves causing a retarded or arrested development. *W. A. Martin*, iv. D-6.

Fifty per cent. of 100 cases of phthisis with sufficient atrophy of turbinates to be distinctly noticeable; it is fair to assume that in a large proportion of moderately atrophic cases this condition had existed prior to pulmonary disease. *J. Payson Clark*, iv. D-6.

Loewenberg's microbe resembles greatly pneumococcus of Friedländer; same form, capsule, etc., but difficult to explain why it should be constantly present in patients suffering from ozæna, while absent in other varieties of rhinitis. *Fage and Moynier de Villepoix*, iv. D-7.

In ozæna septum, as a rule, relatively shorter and naso-pharynx deeper than normal; hereditary and runs in families; hence congenital. *Siegmund Moritz*, iv. D-7.

Two cases of optic neuritis apparently occurring as complication of ozæna; in proportion as the state of the nose improved the ocular troubles disappeared. *Sulzer*, iv. D-7.

Contagiousness of ozæna undoubted, although heredity seems to play an important part. *Capart*, iv. D-7.

TREATMENT. Large cotton tampon saturated with undiluted ichthyol, inserted into each nostril and allowed to remain fifteen minutes; all sinuosities then cleansed with cotton saturated with ichthyol. *T. Passmore Berens*, iv. D-7.

Zinc stearate combined with 25 per cent. of europhen as a stimulant applied with insufflator after cleansing. *Joseph Gibb*, iv. D-7.

Slowing of inspiratory current through excessive-sized nasal cavities counteracted by obturator attached to lower part of septum. *Sänger*, iv. D-8.

Solution of sodium borate in glycerin, diluted with water sufficiently to be sprayed into cavities; glycerin prevents formation of crusts; sodium borate prevents decomposition of exudation. *Muschold*, iv. D-8.

Curettement, to supplant diseased membrane by new tissue, followed by applications of a mixture of ichthyol and olive-oil. *G. Hunter Mackenzie*, iv. D-8, 9.

Three cases permanently cured by curettement performed some time ago. *G. Metcalfe*, iv. D-9.

Interstitial electrolysis: copper needle, asepticized, inserted into mucous membrane of middle turbinated; second needle, a steel one, into that of the lower turbinated of same side, between membrane and bone. *Cheval*, iv. D-9.

HYPERTROPHIC RHINITIS.

PATHOLOGY. Mucous glands sparsely distributed in the hyperplastic epithelial layer of respiratory region, formed of highly-refractive cylinder-cells, such as those found in normal mucous membrane. *George Boenninghaus*, iv. D-4.

Part of the function of the muscular tissue of the vein is to antagonize excessive contraction of the artery. *J. Wright*, iv. D-4.

In sinuses mucoid degeneration in greater or less degree, and no true hypertrophic condition of sinus-walls in every specimen examined. *Pegler*, iv. D-4, 5.

MEMBRANOUS RHINITIS.

PATHOLOGY. Case in a nursling: death from double lobular pneumonia; Klebs-Lœffler bacillus in nasal membrane. *J. Czemetschka*, iv. D-9.

Two cases in which Lœffler's bacillus found. *Treitel and Koppel*, iv. D-9.

Of twenty-three cases diphtheria bacilli found in fifteen. *D. Braden Kyle*, iv. D-9.

Membranes found to be composed of polynuclear leucocytes, in which numerous Klebs-Lœffler bacilli detected. *Gerber and Podack*, iv. D-9.

Membranous rhinitis not an entity; merely the result of ordinary inflammation. Secretions and desquamation products accumulate; micro-organisms decompose magma, giving it its singular odor and consistency. *Bausoleil*, iv. D-9, 10.

Notwithstanding frequent discoveries of diphtheria bacilli no case has terminated fatally, nor has contagion occurred; hence clinical observation against its being diphtheria. *Scheinmann*, iv. D-10.

A form of nasal diphtheria; always a possible source of contagion; patient should be isolated until absence of Klebs-Lœffler bacillus shown. Fourteen cases examined. Cases presenting Klebs-Lœffler bacillus, even of a virulent type, seem to lack in infecting power. *Mazyck P. Ravenel*, iv. D-10.

In one of two cases diphtheria bacillus of slight virulence; nevertheless, in present state of our knowledge, case in which diphtheria bacillus is found should invariably be isolated. *Felsenthal*, iv. D-10.

LUPUS. Case showing enlarged tubercular glands; brother of the patient suffering from tubercular affection of hip-joint. *Walker Downie*, iv. D-15.

Pseudopolypoid lupus of nasal fossæ a form of tuberculosis but little known; many polypi and pediculated tumors of septum are but pseudo-polypi. *Simonin*, iv. D-16.

TREATMENT. Six cases of lupus with tuberculous tumors of nasal septum; curetting and zinc chloride caused recovery in all. *Hiequet*, iv. D-15.

Two cases of lupus treated by thyroid extract; improvement. *Lake*, iv. D-16.

Case of lupus cured; diseased tissues scraped away from interior of nose and

palate; galvano-cautery was freely used in both situations; weak cocaine lotion and 20-per-cent. solution lactic acid applied by patient at home. *Dundas Grant*, iv. D-16.

Several cases in which extensive and total extirpation led to complete recovery. *Goris*, iv. D-16.

RHINOSCLEROMA. Case in which lower two-thirds of nose involved in sclerotic process extending to upper lip; removal of portion of upper lip, nose, turbinated bodies, ethmoidal and maxillary sinuses; granulated normally; membrane gradually reconstituted. *Péan*, iv. D-21.

Cases of rhinoscleroma. *W. Weil*, *P. J. Pick*, *Kayser*, *P. Selifosowski*, *Schloffer*, *Srebrny*, iv. D-22.

SYNECHIÆ, SYNOSTOSES, OCCLUSION, ETC. Case of bony synechia and myxoma of right nasal fossa. *Bonain*, iv. D-22.

Case in which the destruction of a bony occlusion by galvano-cautery cured deafness. *J. R. Winslow*, iv. D-22.

Cases of congenital osseous stenosis of the naris. *Thrasher and Langmaid*, iv. D-22.

TUBERCULOSIS OF THE NOSE.

PATHOLOGY. Up to the present time, 21 cases of tuberculous tumors described in detail; bacilli found in 11 cases; in 6 cases diagnosis based on histological examination and in 4 from clinical aspect. In 18 cases infection took place on cartilaginous septum. *O. Chiari*, iv. D-16.

Case of fatal tuberculous meningitis occurring as result of tuberculosis of the upper portion of the nasal cavities. *Orlandi*, iv. D-17.

Case of tuberculous ulceration of the left fossa followed by lupoid disease of the left ala. *William Hill*, iv. D-17.

Case of tuberculosis of the mouth, maxillary sinus, and nose. *H. Neumayer*, iv. D-17.

Cases of nasal tuberculosis. *Broeckaert*, *Pluder*, *C. Symonds*, iv. D-17.

[Judging by number of cases reported, it is evident that nasal tuberculosis is by no means as rare as was formerly supposed. C. E. Sajous, Ed., iv. D-17.]

TUMORS.

FIBROMA. Large fibroma removed through anterior cavities; tumor 9.5 centimetres in length, 9 centimetres at greatest circumference. *Réthi*, iv. D-18.

Case of recurrent nasal fibroma in an hæmophilic; profuse hæmorrhage as result of various procedures adopted, but final success. *Price Brown*, iv. D-19, 20.

[Price Brown deserves great credit for his persistent efforts; while hæmophilia is mainly due to a diseased state of the arterial coats, the administration, several days before operative procedures, of strychnia to stimulate vaso-constrictors, and ergot to encourage coagulation, may greatly contribute to avert untoward results. C. E. Sajous, Ed., iv. D-20.]

LIPOMA. Case of lipoma located where triangular cartilage meets the nasal bone; first case of its kind, as far as situation is concerned. *Gomperz*, iv. D-20.

MALIGNANT GROWTHS. Case of osteosarcoma in the nose of an ox, of probable traumatic origin. *Jonathan Wright*, iv. D-21.

Case in which Boeckel's operation performed; dangerous hæmorrhage. *Thomas J. Harris*, iv. D-21.

Case unsuccessfully treated with toxins of erysipelas and bacillus prodigiosus. *Norval H. Pierce*, iv. D-21.

Case of sarcoma of nasal cavity in which ligation of both external carotids, with satisfactory results as regards progress of the growth. *M. D. Ledermann*, iv. D-21.

NASAL POLYPI. Two varieties of growth differing in microscopical characters only, but histologically identical; one is found always growing from upper parts of nasal cavity, other usually found only in the lower. Among wealthier classes appears more frequently in women than in men; most common after middle life, greatest number of cases occurring between 60 and 70 as against 20 and 30 in hospital patients. *P. McBride*, iv. D-10, 11.

Mucous membrane of the nose has a peculiar predisposition to the production of mucous polypi as a reaction to noxious influences of a very different nature: purulent disease of antrum or other sinus, ozæna, rhinoliths, etc. *Guye*, iv. D-11.

Etiological relationship between empyema of antrum and polypi of middle meatus certainly not constant; many cases in which no evidence of suppuration, and cheeks equally translucent on both sides. Membrane of middle meatus presents special tendency to myxomatous degeneration; may be consequence of local irritation, but may take place without any appreciable provoking cause. *Luc*, iv. D-11.

Frequency of implantation of polypi in middle meatus; difference between anterior nasal polypus, a real myxoma, and retronasal polypus, nucleus of which formed of myxomatous tissue covered with fibrous tissue. *Ripault*, iv. D-12.

Venous obstruction anywhere in the nasal mucous membrane may result in the production of polypi. *John Dunn*, iv. D-12.

Mucous polypi not at all uncommon in individuals under 16 years. Among seventy-three cases examined five below that age. *Goldstein*, iv. D-12.

Section of middle turbinate body with polypoid formation showing microscopically well-marked caries of the bone. *Knyvett Gordon*, iv. D-12.

Presence of nerves in mucous polypi not

NASAL CAVITIES, DISEASES OF (continued).

uncommon, some growths containing but a few and others many. *O. Kalischer*, iv. D-12.

Case of supposed congenital origin. *Dunbar Roy*, iv. D-13.

Case of marked exophthalmic goitre greatly benefited by removal of polypi. *Seances Spicer*, iv. D-13.

Case of polypi associated with tachycardia; latter relieved after removal of nasal obstruction. *W. Spencer Watson*, iv. D-13.

Four cases in which polypi growing from middle turbinated bone contained osseous growths showing central cavity with well-marked marrow-holes. *Manasse*, iv. D-13.

Case of asthma and anæmia completely relieved by removal of nasal polypi. *J. D. Scott*, iv. D-13.

Case of spasmodic stricture of the œsophagus caused by nasal polypi. *Thomas Hubbard*, iv. D-13.

TREATMENT. To completely remove growths with snare forefinger passed through mouth into naso-pharynx. *Guye*, iv. D-14.

Decortication of the pituitary membrane if pedicles of growths spread broadly in vault, middle turbinated, in superior and middle meatus, and if mucous membrane covered with small granulations, which are so many small diffuse polypi. *Beausoleil*, iv. D-14.

[Above measure attended with considerable risk if utilized for removal of tissue above the lower portion of the middle turbinated bone. C. E. SAJOUS, Ed., iv. D-14.]

For cautery-snare loop platinum and iridium wire most satisfactory; trichloracetic acid after applications to lessen inflammatory reaction. *J. W. Gleitzmann*, iv. D-14.

CYSTS AND CYSTIC POLYPI. Three cases showing early appearance, persistent recurrence; severity of the surgical operations sometimes undertaken in such cases condemned. *Bryson Delavan*, iv. D-14.

Case in which there was symmetrical development,—one tumor under each ala nasi. *Wm. Robertson*, iv. D-15.

Case of sero-mucous cyst located under ala of left nostril. *Milligan*, iv. D-15.

EPISTAXIS. Case in which fear of recurrence of epistaxis seemed to be the sole cause of death in a pregnant woman. *Hubbard*, iv. D-25.

Spot from which hæmorrhage comes always situated on septum about midway between anterior and posterior margin of the cartilaginous plate. *Seiler*, iv. D-26.

TREATMENT. Patient always to sit up before an open window, to keep head higher than the trunk. Ice to the back of neck. Lower extremities in hot water up to knees; small doses of digitalis with ergot every three. *Sheild*, iv. D-26.

[Importance of upright position frequently overlooked. Mere change from the recumbent to the sitting posture frequently sufficient to arrest the flow of blood. C. E. SAJOUS, Ed., iv. D-26.]

Rebellious case in which refrigeration by spraying ether into the nose caused epistaxis to cease at once. *Maizonda*, iv. D-26.

Compressing nose between thumb and forefinger for ten minutes; if insufficient, tampon moistened with 10-per-cent. solution of antipyrin or with fine strips of iodoform gauze introduced with fine forceps. *Lermoyez*, iv. D-26.

Clean silk condom, introduced with a small probe shaped so as to correspond with the nasal cavity after being oiled. Condom then inflated and a thread tied around open end, securing the air. *Thomason*, iv. D-26.

Loose plug of absorbent cotton saturated with full strength official solution of hydrogen dioxide inserted into bleeding cavity, supplemented by firm compression of the nose with fingers. *Vansant*, iv. D-27.

Probably no remedy that will give such general satisfaction as hot water, starting with lukewarm water, injected with a syringe. Syringe with adjustable shield recommended. *Armstrong*, iv. D-27.

Four cases in which acute otitis media developed on the third or fourth day after posterior tamponing had been practiced. Small blood-vessels must be exposed, and a drop of chromic acid or nitrate of silver applied. Or condom introduced empty into nasal fossa and filled with air. Oxygenated water a valuable styptic. *Galetti*, iv. D-27.

NASAL CAVITIES, NEUROSES OF.

ANOSMIA.

TREATMENT. Two cases in which smell and taste had disappeared for several months cured by douches of CO_2 gas. Ordinary seltzer-siphon turned upside down, excess of liquid allowed to escape through the tap, orifice then held close to the nostrils. *Joal*, iv. D-27.

Stimulation of olfactory mucous membrane: ℞ Neutral strychnine sulphate, $1\frac{3}{4}$ grains; powdered iris, 8 grains; powdered sugar of milk, $2\frac{1}{2}$ drachms. M. Sig.: Used as a snuff twice a day. Local application of electricity, carbon-plate electrode at root of nose; metallic electrode as high up as possible into each nasal fossa. *Lermoyez*, iv. D-27, 28.

PAROSMIA. Three cases, main features of which were intensity of unpleasant sensation and absence of any visible pathological lesion. Solution of strychnia (10 minims to 1 drachm daily) as intra-nasal spray. Permanently efficient in a week in one case. Result of treatment would seem to point to distribution of olfactory nerves as seat of

lesion rather than olfactory bulb or a higher centre. *Tilley*, iv. D-28.

Parosmia of great interest to the physician, becomes an obsession, often leading to hypochondriasis. *Lermoyez*, iv. D-28.

[Parosmia occasionally occurs as a complication of various inflammatory disorders of the Schneiderian membrane. Proper local treatment of these conditions frequently yields satisfactory results without the employment of measures to combat the parosmia *per se*. C. E. SAJOUS, Ed., iv. D-29.]

REFLEX NEUROSES.

COUGH. Case of rhythmical reflex cough caused by a lymphadenoma of naso-pharyngeal cavity. Cessation of cough after extirpation of growth. *Jouroukschi*, iv. D-31.

Tooth growing in the floor of right nasal fossa, giving rise to attacks of coughing and laryngeal spasm. *Brindel*, iv. D-31.

EPILEPSY. Two cases of reflex epilepsy of nasal origin. Marked hypertrophy of the turbinates reduced by galvano-cautery. All untoward symptoms, including epilepsy, overcome. *Siethoff*, iv. D-29.

Case in which nasal osteoma caused epileptic seizures. Removal by vertical osteotomy; abolition of epileptiform crises for a month; subsequent crises not so intense as before operation. *Adenot*, iv. D-29.

HEADACHE. Headaches more frequently of nasal origin than is generally suspected; in the main, of congestive variety due to interference with circulation of dura mater. *Nichols*, iv. D-29.

MELANCHOLIA. Case of melancholia cured by intra-nasal operation after having been submitted to various active measures. *Bosworth*, iv. D-31, 32.

NEURALGIA. Case markedly illustrating nasal origin of many trigeminal neuralgias. *Spear*, iv. D-29.

Several severe cases cured by treatment of nasal disorders. *Mayo Collier*, iv. D-29.

EYE. In 164 children with diseased eyes 40 per cent. had affections of upper air-passages, especially of the nose. *Winckler*, iv. D-30.

Importance of bearing this class of affections in mind, in this connection, illustrated by the fact that examination of 2344 children in four schools in Stockholm showed that great majority suffered from some disorder of naso-pharyngeal tract. *Stangenberg*, iv. D-30.

Case in which ozæna had caused iritis; lesions must be attributed to infection by microbe of ozæna. *Fage*, iv. D-30.

EAR. Turbinal hypertrophy must be regarded as a serious complication of deafness and allied aural disorders; in cases in which it precedes aural symptoms it may justly be looked upon as a principal cause of these. *Macnaughton Jones*, iv. D-30.

In 95 per cent. of all cases of deafness from disease of the middle ear, primary disease in the nose or throat. *J. A. Thompson*, iv. D-31.

Neither acute nor chronic purulent otitis influenced by nasal treatment, but liability to relapse after their cure decidedly lessened by removal of naso-pharyngeal anomalies. Proliferation or adhesive disease of the middle ear the consequence of retronasal catarrh. *Gradle*, iv. D-31.

NASAL SEPTUM.

ABSCESS. Three cases in which septum the primary seat of an acute lesion with febrile disturbances; no history of traumatism or of local infection being present. *A. Kuchner*, iv. D-22.

DEVIATION AND EXOSTOSIS. Cartilaginous plate incised horizontally and perpendicularly; after straightening, vulcanite tube shaped like an old-fashioned powder-flask introduced. Permanent result obtained. *Emil Mayer*, iv. D-25.

Of all measures proposed, that involving use of small burrs and trephines, such as are used in America, the best. *Spiess*, iv. D-25.

No longer recourse to straight saws. Results obtained with trephine in twenty-five cases confirm advantages of trephine. *Kretschmann*, iv. D-25.

TUMORS OF THE SEPTUM. Of 731 cases of tumor of the septum, female sex showed greater predisposition, especially to sarcomata; usually located on cartilaginous septum. Benign tumors of this region more disposed than tumors of other organs to become transformed *in situ* into malignant tumors. *Y. Arslan*, iv. D-24.

BLEEDING POLYPUS; ANGIOMA. Polypoid enlargements are frequently analogous to those met with over middle turbinated bone; are due to a chronic catarrhal process. *Réthi*, iv. D-23.

Specimens taken from three cases found to consist of a connective-tissue stroma, meshes containing round cells, and varicose veins. Glands in the deeper layers. Bleeding not a characteristic symptom. *Arthur Alexander*, iv. D-23.

Case of angioma in which hæmorrhages continued after removal. *W. Freudenthal*, iv. D-23.

MALIGNANT GROWTHS OF THE SEPTUM. Case of growth showing typical epithelial cells, with many lymph-cells. *Sikkel*, iv. D-22.

Case of sarcolymphadenoid tumor. *Wodon*, iv. D-23.

Extensive ulcerative tumor of anterior portion of septum simulating tuberculous perichondritis. Microscopical examination alone revealed its true nature,—epithelioma. Removal; recurrence. *Strazza*, iv. D-23.

PAPILLOMA. Case of confluent papilloma inserted around nasal aperture, in-

NASAL CAVITIES, NEUROSES OF (continued).

cluding anterior extremity of inferior turbinated body. *Ripault*, iv. D-24.

True papilloma of extraordinary dimensions. *Weil*, iv. D-24.

Confusion in nomenclature introduced by Hopman, who called "papillomatous hypertrophies" and "papillomatous fibromata" by the one name of "papilloma," differing in pathogenesis, structure, and situation, having only in common the same appearance to the naked eye. *Jonathan Wright*, iv. D-25.

NASAL ACCESSORY CAVITIES.

ANTRUM OF HIGHMORE.

EMPYEMA. Several cases which had come to be treated for an entirely different affection and in which empyema was the real cause of disease. *Avellis*, iv. D-35.

Case of empyema in an infant 3 months old. *Rudeaux*, iv. D-35.

Affections of sinuses can frequently not be cured because several of them are simultaneously diseased. Case in which nasal suppuration continued, notwithstanding treatment of diseased frontal sinus, patient recovering only after opening of antrum. *Dundas Grant*, iv. D-35.

Case of abscess of antrum of Highmore and mastoid cells,—latter the direct result of former. *C. H. Baker*, iv. D-35.

Case simulating so-called caseous rhinitis. *Strazza*, iv. D-35, 36.

Case followed by acute secondary infection of the left upper sinuses, with meningeal manifestations and death. *Claoué*, iv. D-36.

Case complicated by orbital osteoperiostitis, with perforation of the vault, abscess of the frontal lobe, and atrophy of the optic nerve, followed by death. *Panas*, iv. D-36.

Case in which recovery followed the removal of the necrosed bone in the nasal cavity. *Marvin*, iv. D-36.

TREATMENT. Case of alarming hæmorrhage following opening by the drill through alveolar process. *Scheppegrell*, iv. D-36.

Anterior penetration into the antrum with a straight trocar, instead of making opening as in the Mikulicz-Krause position, far back, perforation low down and more anteriorly. *Freeman*, iv. D-36.

In cases of long standing of empyema of either the frontal or maxillary sinus, plea for a large opening and the dry treatment. Purulent contents removed, cavity packed with iodoform gauze, withdrawing and replacing fresh gauze until this comes away dry. Cavity then dusted with equal parts of iodoform and boric acid and fresh gauze replaced. *John Dunn*, iv. D-37.

Literature of past years teaches that, when operator thoroughly familiar with intra-nasal technique, lavage through the natural meatus to be preferred. When trephining must be done, alveolus of a molar tooth the better site. Opening through canine fossa should be reserved to cases which require tamponing and curetting. *Raugé*, iv. D-37.

Examination of 7000 skulls showing that, by opening antrum at base of malar process midway between root of second bicuspid and first permanent molar, the lowest point in the cavity is nearly always reached without entering nasal cavity. Antrum disease seldom caused by diseased teeth. *E. S. Talbot*, iv. D-37.

Zinc sulphocarbolate, 5 grains to the ounce, injected into cavity after irrigation with antiseptic solution in cases which do not yield to antiseptics after proper opening of the cavity. *Watson*, iv. D-37.

TUBERCULOSIS. Case of empyema of the antrum apparently of tuberculous origin. *Kekwick*, iv. D-38.

Case of supposed tuberculosis of the antrum. *Means*, iv. D-38.

FOREIGN BODIES. Case following extraction of a tooth. Morsels of food penetrating into the antrum, and patient himself introducing successively pieces of straw, wood, cotton, etc. *Brunschwig*, iv. D-38.

Case in which tampons were gradually accumulated in the cavity and assumed position of foreign body. Another case in which laminaria was accidentally allowed to fall back into it. *Baratoux*, iv. D-38.

Case in which, while antrum was being washed out, the patient made an abrupt movement, causing the end of the cannula to break off and remain in the sinus. Eight days afterward foreign body expelled from nasal fossa. *Gouly*, iv. D-38, 39.

TUMORS. Several polypoid masses removed from the right maxillary sinus. *Symonds*, iv. D-38.

Case of carcinoma of the antrum preceded by nasal polypi. Case of Fink's quoted to show that polypi are at times followed by carcinomata. *John Dunn*, iv. D-38.

Case of carcinoma of the antrum presenting symptoms of empyema. Operation followed by complete recovery. *Reinhard*, iv. D-38.

Case of carcinoma of the right antrum. *Cleveland*, iv. D-38.

FRONTAL SINUS.

EMPYEMA. Acute form very rare. Three cases, all ending fatally, and apparently due to an attack of influenza. Onset sudden, violent hemicrania, lancinating pain propagated along the nose. Later on, ptosis, with tumefaction of the upper lid. *Müller*, iv. D-39.

Empyema of frontal sinus attended with bulging backward and downward of orbital plate attended with unusual difficulties of diagnosis; catheterism through the nares

more simple and effective when sinus distended. *G. G. Martin*, iv. D-39.

TREATMENT. Case treated like one of mastoid disease; the cribriform plate the passage through which germs enter cranial cavity; important to carefully avoid upper part of the nasal fossa in suppurative processes. *Joseph A. Andrews*, iv. D-40.

In intra-nasal method lamina cribrosa may be injured by instrument; frontal operation best; three illustrative cases. *Herzfeld*, iv. D-40.

Although in normal state it is not easy to perform catheterization of frontal sinus, a cannula easily may be inserted in pathological cases, after removing portion of middle turbinated body. *Hajek*, iv. D-40.

Trephining of frontal sinus for removal of a large necrosed bone. *Chiari*, iv. D-40.

Two cases in which frontal sinus opened by making incision in the skin, in the fold of corrugator supercilii. *Flatau*, iv. D-40.

Case in which the abscess spontaneously opened at the corner of the eye. (See text.) *Lagrange*, iv. D-40.

SPHENOIDAL SINUS. To examine: extremity of probe curved at obtuse angle and carried backward parallel to the direction of the septum, while shaft is held parallel to the dorsal line of the organ; at depth of three inches extremity of probe turned through a quarter of a circle, handle depressed, and sound enters sinus in an outward and backward direction. *Laurent*, iv. D-41.

NASO-PHARYNX, DISEASES OF.

ADENOID VEGETATIONS. Evidence showing the existence of adenoid vegetations in different parts of the world and in different races, even in antiquity. *Wilhelm Meyer*, iv. D-43, 44.

There is a class of cases in which the obstruction is due to a congenitally narrowed naso-pharynx; and another in which effects manifested entirely upon the general nutrition of the patient, which is always abnormal. *Harrison Allen*, iv. D-44.

Adenoid growths a sign of degeneracy in a certain number of cases, in which a number of stigmata also indicate the real character present. *Régis*, iv. D-44.

Recurrence of adenoid vegetations after their removal more frequent than is usually supposed; thus necessity of complete removal. *F. E. Hopkins*, iv. D-45.

TREATMENT. Anæsthetics should be given to adults or children old enough not to be alarmed by the apparatus. Nitrous oxide and ether to begin with; anæsthesia, if necessary, kept up with chloroform cautiously given from lint. In young children chloroform, and, if taken well, continued; if patient weak, changed to ether as soon as he becomes semiconscious. Most advantageous position: patient upon his back, head fully extended, vertex supported on the table or head hanging over end of the table; in cases of bleeding, a cup is thus formed by hard palate, which leaves air a free passage to the larynx. *Alexander Wilson*, iv. D-46.

Warning against indiscriminate use of chloroform; administration of a generul anæsthetic in vast majority of cases unnecessary; personally only used in 4 out of 254 operations. *Arnold Larsen*, iv. D-46.

Bromide of ethyl recommended as an anæsthetic. *Arslan*, iv. D-46.

Bromide of ethyl highly recommended. *Dundas Grant*, *George Morgenthau*, iv. D-47.

Anæsthetic used only in very nervous patients. Not so important to remove all the tissue; lymphoid structure has some necessary function which should not be destroyed by removing it entirely. *J. Solis-Cohen*, iv. D-47.

Death from convulsions after removal of adenoids in a nervous and anæmic boy, whose naso-pharynx was scraped under a 10-per-cent. cocaine solution. *Sanford*, iv. D-47.

Secondary hæmorrhage consequent upon removal of adenoid vegetations almost always noted in cases which had passed the most favorable period for the operation,—between 6 and 10 years. Children bleed the less the younger they are. *R. Beausoleil*, iv. D-47.

Aqueous solution of resorcin, 50 to 100, applied with absorbent cotton mounted on a suitably-curved holder. From six to ten applications every two or three days cause symptoms to disappear. *Marage*, iv. D-47.

Above treatment tried in three cases; no result attained even after nine, ten, and fourteen applications. *Edmund Chaumier*, iv. D-48.

Little attention thus far given to inflammations of pharyngeal tonsils, whether normal or hypertrophied. When medical treatment has sufficed to cure adenoids the case had been one of adenoiditis. *Helme*, iv. D-48.

HYPERTROPHY OF THE NASO-PHARYNGEAL TONSIL. In nasal obstruction, especially caused by post-nasal growths, respiration nasal, and not buccal, during sleep. *Parker*, iv. D-50.

Hypertrophy of the pharyngeal tonsil not so common as supposed. Of between 11,000 and 12,000 persons only 2 per cent. found to have hypertrophy of Luschka's tonsil. *Ingals*, iv. D-50.

Sinuses in the naso-pharyngeal mucous membrane not very common; cysts very rare. So-called "bursa" not a normal characteristic, but the result of chronic inflammation. *Wright*, iv. D-50.

TREATMENT. Whip-cord ligature introduced into nose through two tubes, then twisted by means of handle, care being

NASO-PHARYNX, DISEASES OF (continued).

taken that it is not twisted so as to cut, but only to compress, the pedicle. Ecraseur then passed through other nostril, pushed up to within about one-fourth inch of the whip-cord ligature. Pedicle cut through with wire; pedicle held by whip-cord ligature. *Stoker*, iv. D-51.

BASAL HERNIA. Case in which hernia presented in the naso-pharyngeal cavity. Osteoplastic resection of the superior maxilla; pedicle found, transfixed, and ligated; recovery. *Fenger*, iv. D-51.

TUBERCULOSIS OF THE PHARYNGEAL TONSIL. Two cases reported by Lermoyez last year in which tuberculosis of lungs followed removal of adenoid vegetations. iv. D-48.

During first stage bacillus remains localized in tonsils; in second stage it penetrates as far as lymphatic glands. Palatine pharyngeal or lingual tonsils constitute an easy and frequent point of penetration for Koch's bacillus; a latent tuberculosis results, which may assume appearance of ordinary adenoid vegetations. *Dieulafoy*, iv. D-48.

Tuberculous angina only once seen to develop after removal of adenoid vegetations. Of 100 consecutive patients examined, microscopically none revealed tuberculosis. Bacilli strewn on surface of healthy mucous membrane may readily give results such as those obtained by Straus. *Broca*, iv. D-49.

Among uncommon accidents consequent to removal of adenoids is mobilization of tuberculous germs. *Simonin*, iv. D-49.

NEPHRITIS. See KIDNEYS, DISEASES OF.

NEPHROLITHIASIS. See KIDNEYS, DISEASES OF.

NERVE, SURGERY. (See also NEURALGIA.)

SUTURE. Analysis of 117 primary and 130 secondary cases of suture elicited following points: 1. Fears of tetanus groundless. 2. Failures due to secondary degeneration spinal motor cells. 3. Clean end-to-end suture after freeing ends some distance most satisfactory. 4. Fine chromicized catgut best. 5. Rest and relaxation of nerve during repair advisable. 6. Secondary results offer good hope of success. 7. When great loss of substance, grafting from young animal gives best results. 8. Decalcified bone of little service. 9. Restoration of function may take place months after operation, sensation returning first. 10. Although distal portion and interposed graft rapidly degenerate, transmission powers and regeneration may take place. *De Forest Willard*, iii. A-74.

In sword or shot wounds immediate reunion should be attempted to avoid slow regeneration. *Maugard*, iii. A-74, 75.

Primary suture of radial in a boy. Complete function restored in a month. *Glück*, iii. A-75.

Case requiring galvanism for six months before extension of fingers possible, after suture of musculo-spiral three months after injury. *Wharton Sinkler*, iii. A-75.

Possibility of primary union denied; cases reported, sensation alone has been studied and not motion. *J. K. Mitchell*, iii. A-75.

Cases of successful suture of nerves of the upper extremities. *Gallaudet, Perriol, Hutchinson, Frey, Caillé, Tubby*, iii. A-76.

Exsection of a portion of and suture of the sciatic nerve after severe traumatism. Recovery. *Dallas Pratt*, iii. A-76.

Secondary suture of the sciatic followed by temporary partial recovery, and ending in ulceration of foot. Amputation of latter two and a half years after suture. *Frecman*, iii. A-76, 77.

No regeneration of peripheral stump of nerve unless sutured to central stump. Neural infixation and illustrative case. *Huber, R. Harvey Reed*, iii. A-77, 78.

EXSECTION OR DIVISION. Preponderance of testimony in favor of comparative safety in attacking pneumogastric when involved in disease and when too much operating not required. *Roswell Park*, iii. A-78, 79.

TUMORS. Sarcoma of sciatic nerve removed without severing continuity of latter, and without impairment of the power of the leg. *Morton*, iii. A-79.

Removal of fibromyxoma of median nerve, without suture of ends. Recovery perfect. *Tuffier*, iii. A-79.

Case in which crushing of a neuroma between the teeth of forceps relieved the pain. *Thiriar*, iii. A-79.

Excision and suture of peroneal nerve in case of sarcoma. *Gerster*, iii. A-79.

DISLOCATION. Dislocation of ulnar nerve at elbow; reduction, compress and splint, but persistence of tendency to slip over inner condyle when arm flexed. *Wharton*, iii. A-79, 80.

NEURALGIA.

FACE. Pathology of neuralgia still obscure. Nerve-sections examined showed different conditions. Two elements probably present,—a peripheral irritation and a physiological disturbance of the nerve-centre, giving the neuralgia in different regions its peculiar character. *Putnam*, iii. A-62.

In a ganglion removed, cells reduced in number and irregular proliferation of connective-tissue elements. *D'Antona*, iii. A-62.

Case of spasmodic neuralgia of left side

of face. Sensitiveness of edge of gums of the same side (almost all the teeth lost). Removal of mucous membrane, periosteum, and portion of osseous tissue from most sensitive point. Pain ceased same day and has not since returned. *Josias*, ii. C-12.

EXTREMITIES. Case in which slight pressure upon point equally distant from tuberosity of ischium and great trochanter gave rise to fever. *Cary*, ii. C-12.

Temperature of affected leg lower in certain regions. In opposition to Erb, who noted redness, heat, increase of perspiration, and alternations of heat and cold. In sciatica vaso-dilator fibres paralyzed, whence vaso-constriction. *Erber*, ii. C-12.

Fifteen cases of neuralgia of the external cutaneous nerve. Found chiefly among males suffering from disturbances of circulation (hæmorrhoids, varicose veins) and who lead a sedentary life. *Roth*, ii. C-12.

Case of paræsthesic neuralgia of external cutaneous resulting from accident. *Déstot*, ii. C-13.

Three cases of rectal neuralgia with marked general symptoms. *Arnold*, ii. C-13.

MEDICAL TREATMENT. Beneficial action of constant current in intractable neuralgia. *Althaus*, ii. C-13.

Success with aconitine; in fifty-seven cases; no untoward symptoms. *Hursberger*, ii. C-13.

Intercostal neuralgia not a disease, but a symptom. Cause should be treated. *Billings*, ii. C-13.

℞ Solution of trinitrine diluted to $\frac{1}{100}$, $\frac{1}{2}$ drachm; tincture of capsicum, $1\frac{1}{2}$ ounces; mint-water, 3 ounces. M. Sig.: 3 drops three times daily. A valuable remedy. *Mikhalkine*, ii. C-13.

Salophen, analgesic action not thoroughly manifested till doses of 45 grains and more per diem are reached. *De Buck and Vanderlinden*, v. A-136.

In trigeminal neuralgia antipyrin solution 15 minims subcutaneously. Syringe should be cleaned, otherwise antipyrin will ruin the instrument. *Bergquist*, v. A-25, 26.

Analgen, 45 grains to 1 drachm daily. *Maas*, v. A-12.

Hydrotherapeutic treatment if of rheumatic origin; draws blood to affected parts, and, if neuralgia infectious or toxic origin, by provoking elimination of morbific product. Alternate use of hot and cold water. *Buxbaum*, ii. C-13.

When in sciatica treatment without effect after six weeks, symptoms due to tabes dorsalis, an abdominal tumor, or strangulation of nerve where it leaves the pelvis. *Schrieber*, ii. C-13.

Hypodermic injections of artificial serum with ℞ Sulphate of sodium, 75 grains; chloride of sodium, 75 grains; water, 1 quart. No local symptoms; almost always slight rise of temperature. *Debove and Bruhl*, ii. C-13, 14.

For tic douloureux, subcutaneous injections into affected part of ℞ Cocaine hydrochlorate, 0.03 gramme; antipyrin, 4 grammes; distilled water, 10 grammes. *Grandclément*, ii. C-14.

Case of epileptoid neuralgia of left trigeminus, subcutaneous injection of hyoscine hydrochlorate, $\frac{1}{3\frac{1}{2}0}$ grain, over painful spot or into arm; four days' treatment alternated with four days' rest. Marked improvement. *Pont*, ii. C-14.

Neurodin, doses of $7\frac{3}{4}$ to 46 grains, repeated several times daily; occasional diarrhœa, and, in rare instances, lessening in number of heart-beats. *Ugo Lippi*, v. A-109.

In intercostal form: ℞ Coal-oil, 2 fluidounces; oil turpentine, 2 fluidounces; ammonia-water, 1 fluidounce; tincture opium, 1 fluidounce. *J. H. Powell*, v. A-100.

SURGICAL TREATMENT. Neuroparalytic keratitis and subsequent destruction of the eye by panophthalmitis as results of the removal of the Gasserian ganglion in dogs, which results do not occur when superior cervical ganglion removed before Gasser's. *Spallita*, iii. A-63, 64.

Removal of ganglion preferable to removal of main branches in obstinate cases. Not any more dangerous or difficult, while more efficacious. *Fedor Krause*, iii. A-64 to 66.

In a certain number of cases face sensation may remain or be present soon after division of nerve, yet pain be absent. *Tiffany*, iii. A-67.

Removal of ganglion indicated in cases in which neuralgia includes all the branches of the trigeminus. *Le Dentu*, iii. A-67.

Results so far obtained do not justify abandonment of more superficial neurectomies. *Dandridge*, iii. A-67.

Wiring of zygoma unnecessary; if it and the fascia simply allowed to drop into place much less deformity results. *Mixter*, iii. A-68, 69.

All more external methods, infra-orbital and supra-orbital, should first be exhausted before removal of ganglion. *Richardson*, iii. A-69.

Proximity to cavernous sinus dangerous in removal of Gasserian ganglion. Case in which it was penetrated by tenotome, causing death next day. *Chalot*, iii. A-69.

Sudden profuse venous hæmorrhage during a Hartley operation while liberating infra-maxillary branch, and shown at necropsy to have been due to focus of softening involving the cortex. *Gerster*, iii. A-69.

Same complication in a case; cholesteatoma situated where root of trigeminus enters the pons found to have been cause of neuralgia. *Caponotto*, iii. A-70.

NEURALGIA (continued).

Krause's method preferable when patient stout; Doyen's operation more certain in thin persons. *Doyen*, iii. A-70.

When neuralgia affects second and third branches, intra-cranial resection required, external operations leaving scars about nerve-stumps with tendency to recurrence. Hæmorrhage in two cases, middle meningeal running in bony canals instead of shallow grooves. *Beck*, iii. A-70.

Hartley operation bids fair to give permanent relief. Although a few deaths reported, accidents could, with due care, be avoided in the future. *Abbe*, iii. A-70, 71.

Case of division of nerves at infra- and supra- orbital foramina; cauterization by pushing small tip of Paquelin cautery ½ inch into infra-orbital foramen. Perfect freedom from pain since operation,—one year. *Clark*, iii. A-71.

Neurectomy of trigeminal branches at points of issue and cauterization of central stump. Three successful cases. *Tansini*, iii. A-71.

Removal of Meckel's ganglion by turning up the cheek and cutting away the whole front of the antrum. *MacGillivray*, iii. A-71.

When neuralgia begins in the infra-orbital region, resection of nerve and of Meckel's ganglion indicated even when other branches of trigeminus involved. Removal of Gasserian as last resort. *Guinard*, *Dubois*, iii. A-71.

Tearing out of the diseased nerve by winding it round forceps, after cutting it as high up as possible; eight to ten centimetres may thus be removed. *Adenot*, *Mollière*, *Tripier*, *Gangolphe*, *Chipault*, iii. A-72.

Tearing out of nerve will eventually replace more severe measures. Several permanent successes. *Karewski*, iii. A-72.

Division of inferior dental at the dental foramen very likely to be followed by degeneration of divided nerve. Case of failure with this procedure, and recovery after resection of nerve from mental foramen to masseter and stretching. *Rafin*, iii. A-73.

In a case of neuralgia of the little finger, inner side of hand and arm,—*i.e.*, seventh right cervical root,—hyperæsthetic zone; opening of spine, section of first, eighth, and ninth cervical arches, showed nothing abnormal. Incision of dura mater; five posterior corresponding roots resected. Disappearance of pain and recovery. *Chipault and Demoulin*, iii. A-72, 73.

SCIATICA. Nitroglycerin in 1-per-cent. solution in alcohol; three drops daily. Or in following mixture: 1-per-cent. alcoholic solution trinitrine, 1¼ fluidrachms; tr. capsici, 1⅞ fluidrachms; aq. menth. 3¾ fluidrachms. Five to ten drops three times daily. *Mikhalkine*, v. A-111, 112.

Salophen used with great success in treatment of four cases. Daily dose 1 drachm. *L. Capellari*, v. A-136.

Galvanic brush far superior to the faradic brush in intensity of action and efficacy. *Witkowski*, v. B-18.

NEURASTHENIA.

ETIOLOGY. Neurasthenia does not consist in exhaustion of nervous energy, but rather in weakening of transmission of energy. Will not be understood unless connections between mind and body considered. *McLain*, ii. C-2.

Neurasthenia as an attenuated melancholia capable of progressing until it becomes true insanity if certain conditions exist. *Boissier*, ii. C-2.

Neurasthenia of traumatic origin may be produced in absence of all hereditary factors. Manifests itself by local phenomena, especially paralysis of lower limbs. Develops by autosuggestion. Suggestion only treatment. *Patricopoulo*, ii. C-2, 3.

Neurasthenia of cardiac origin; phenomena almost exclusively neuropathic. Hence necessary to carefully examine heart. Rest. Hygienic surroundings. *Pardon*, ii. C-3.

Neurasthenia often allied to arteriosclerosis. *Régis*, ii. C-3.

Neurasthenia may be noted at any period of syphilis, may follow mental shock caused by infection or infection itself. May be caused by badly conducted or too rigorous treatment. *Merlier*, ii. C-3.

Case of epileptic attacks in which patient acquired neurasthenia from bromides taken when fasting. Epileptic attacks disappeared when neurasthenic phenomena appeared. *Isnel*, ii. C-3.

DIAGNOSIS. Syphilis not the only disease likely to produce cephalalgia among syphilitic patients. Neurasthenia frequent sequence of syphilis; neurasthenic cephalalgia distinguished from syphilitic by lesser intensity of pain; sensation of vagueness, emptiness. Neurasthenic cephalalgia almost always diurnal; begins on awakening, to diminish toward night. Duration confirms diagnosis, several months, even years. Only treatment that of neurasthenia. *Fournier*, ii. C-3, 4.

SYMPTOMATOLOGY. New variety: angioparalytic neurasthenia. Besides usual phenomena general pulsation of arteries, most marked in head. General relaxation of arterioles and capillaries. *Dana*, ii. C-4.

"Anxiety neurosis." General irritability; exaggerated anxious apprehension; anxiety with palpitations, perspiration, dyspnœa, boulimia; nocturnal frights. *Freud*, ii. C-4.

Case in which abundant hæmatemesis occurs simultaneously with neurasthenic crisis. *Mesnard*, ii. C-4.

TREATMENT. Small amount of alcohol

at principal meal. Coca preparations produce greater effect as tonic and stimulant of nervous system. *Hammond*, ii. C-4.

Symptoms of neurasthenia most likely due to ischæmia and lack of nutrition of certain regions; thermo-therapeutic treatment. *Ransom*, ii. C-4.

If elimination of phosphoric acid is increased in proportion to that of urea, glycerophosphates are indicated. *Albert Robin*, v. A-78.

Often characterized by arterial hypotension. Electricity restores vital forces; subcutaneous treatment seems to have elective effect upon mental state; two methods combined produce more lasting results than when either is used singly. *De la Touche*, ii. C-4, 5.

Grave case of cerebro-spinal neurasthenia, which had resisted usual treatment, cured by franklinization, electric friction, sparks, and the breeze. *Duboc*, v. B-23.

Four cases treated with subcutaneous injections of liquid extract of cerebral matter, 46 minims being injected three times weekly. In two cases marked improvement. *Vetleser*, ii. C-5.

Psychical treatment,—helping patient to master diseases by exerting reason and will. Apart from direct intervention, hypnotism. *Putnam*, ii. C-5.

Certain drugs, such as digitalis and iron, become very useful through suggestion, and at once produce marked effect. *Osgood*, ii. C-5.

Majority of drugs which show favorable results do so through psychical element. Wonderful results obtained. *Prince*, ii. C-5.

Out of 99 cases of neurasthenia treated by psychotherapy 35 improvements and 21 recoveries. *Van Eeden and Van Reuterghem*, ii. C-5.

Trional best and least dangerous hypnotic in insomnia of neurasthenia. *Claus*, ii. C-5.

℞ Coca-wine, 1 quart; tincture nux vomica, 38 to 75 minims; extract of quassia, 75 minims. M. Sig.: Small wineglass at each of the two principal daily meals. Two or three glasses of milk during the day. *Geley*, ii. C-5.

Experience in several hundred cases showing that these cases will not stand the shock of hydrotherapy. *G. Manley Ransom*, v. A-182.

NEURITIS.

ETIOLOGY. Case in a child after ingestion of large dose of arsenic and symptoms of acute poisoning. *Meirowitz*, ii. C-5, 6.

Large doses of arsenic for pernicious anæmia, followed by symptoms of neuritis and persistent neuritis of lower limbs. *Barr*, ii. C-6.

Two cases of peripheral neuritis caused by arsenical poisoning. One death. *Purser*, ii. C-6.

Multiple neuritis with almost complete paralysis of forearm and hands and impotence of lower limbs caused by an arsenical blister. *Parsons*, ii. C-6.

Case of neuritis caused by carbonic-oxide gas. Rapid improvement under potassium iodide and warm fomentations. *Glynn*, ii. C-6.

Three cases of acute mercurial poisoning with symptoms of polyneuritis. In acute form, pain, atrophy without degeneration, diminution of reflexes. In chronic form, localized neuritis without atrophy, preservation of reflexes. *Spillmann and Etienne*, ii. C-6.

Death, in six days, of a young girl from acute multiple neuritis. Considerable amount of lead found in drinking-water used by her. *Churton*, ii. C-6.

Eight members of same family almost simultaneously suffering from peripheral polyneuritis secondary to infectious troubles allied to influenza. *Reformastsky*, ii. C-6.

Case of neuritis following influenza, affecting brachial plexus. *Trouillet and Vallet*, ii. C-6.

Case in which syphilis was contracted in March and acute polyneuritis showed itself at the end of August, followed by death middle of September. *Stein*, ii. C-6, 7.

Case of syphilitic neuritis of ulnar nerve; tingling, numbness, partial loss of power of region of supply. *Gaucher*, ii. C-7.

Case of optic atrophy of gonorrhœal origin. *Panas*, ii. C-7.

Case of neuritis of malarial origin. *Catrin*, ii. C-7.

Case of diabetes and tuberculosis, showing symptoms of multiple neuritis. At autopsy lesions of cord and optic nerves. *Fraser and Bruce*, ii. C-7.

Three varieties: (1) pyæmic, or septic; (2) cachectic; (3) form having starting-point in mental trouble induced by childbirth, without puerperal infection. *Lunz*, ii. C-7.

Case of a boy stung by a centipede. Great mental irritability. Distinct aura, status catalepticus ending in convulsions. On fifteenth day paralysis of sphincters. Death from neuritis. *Riley*, ii. C-78.

Ninety per cent. of all cases of neuritis due to action of cold. Brunt of inflammation on sheath of nerve, nervous tissue itself being affected only in serious cases. *Stevenson*, ii. C-8.

Case of neuritis following fracture of scapula, with paralysis of angularis, rhomboideus, trapezius, pectoralis major and minor, and serratus magnus muscles. *Grouillet*, ii. C-8.

Fatal case of spontaneous acute multiple

NEURITIS (continued).

neuritis. Neither infection nor toxæmia to explain origin. *Derville*, ii. C-8, 9.

Polyneuritic psychosis; amnesia principal symptom. *Colella*, ii. C-10.

Case of bilateral peripheral neuritis, characterized by paresis of arms, legs, and both sides of face; sensitive disturbances and loss of reflexes, dyspnœa, weakness, gastralgia, and constipation. *Middleton*, ii. C-11.

Neuritis of the brachial plexus producing paralysis of muscles innervated by the fifth and sixth cervical nerves. *Krauss*, ii. C-9.

Two cases of multiple neuritis in which autopsy showed medullary lesions. *Goldscheider and Moxter*, ii. C-9.

Case of peripheral neuritis of ataxic form. *Mons*, ii. C-10.

General impotence, wasting of extensor muscles, and loss of knee-jerk of rheumatic origin. Gymnastics, electricity, hypodermic injections of strychnine. Recovery. *Leyden*, ii. C-10.

Case of multiple neuritis complicated with unilateral facial paralysis nine months after onset. No connection between the two. *Eskridge*, ii. C-10.

DIAGNOSIS. In cases of multiple neuritis of long standing no sensitive disturbances usually found, while motor paralyses may be exceedingly pronounced. *Preston*, ii. C-9.

Diagnosis between local neuritis, rheumatism, neuralgia, diseases of central nervous system, and neurasthenia. Pain of little importance. Best method that by exclusion. *Bishop*, ii. C-9.

TREATMENT. Majority of cases of neuralgia are dependent upon neuritis. Rest in most advantageous position chief local measure. Uniform warmth. *Cagney*, ii. C-11.

Galvanic current with 10-per-cent. solution of cocaine hydrochlorate by cataphoresis, positive pole inside patient's mouth, negative on surface of cheek; 5 milliampères for five minutes. *McGuire*, ii. C-11.

Three cases of peripheral neuritis treated by injections of strychnine. *Walker*, ii. C-11.

In traumatic neuritis, forced pressure of most painful points after anæsthesia by chloroform. Ten cases. *Delorme*, ii. C-12.

NEWBORN, DISEASES OF.

ALIMENTARY CANAL. Contents of rectum sterile immediately after birth; first infection of rectum takes place before alimentation has begun, in from ten to sixteen hours. Sources of infection the atmosphere of the room and the water of the bath. *Schild*, ii. I-22.

Best purgative for young infants is castor-oil in emulsion, combined with gum acaciæ, peppermint, and sugar. *Marfan*, ii. I-22.

Case of imperforate duodenum. Death on third day. *Brindeau*, ii. I-22.

Case showing fever, purpura, and general icterus. Ductus choledochus imperforate. Death on twelfth day. *Brindeau*, ii. I-22.

Melæna may be due to intra-cranial lesion from the use of the forceps in many cases. *Schiff and Jewett*, ii. I-23.

BLOOD. Blood of newborn infants contains 350,000 to 500,000 more red corpuscles per cubic centimetre than in adults. First day or two rapid increase in number, followed by a gradual decrease. Size and shape same as in adults. White corpuscles twice as numerous as in adults. *Elder and Hutchison*, ii. I-14.

Hæmatemesis due to fragile blood-vessels and to defective coagulability of the blood, or blood swallowed after injury to oral mucous membrane or drawn directly from the mother's breast. *Fulton*, ii. I-15.

EYES.

OPHTHALMIA NEONATORUM. Success by irrigation with 1 to 5000 solution of potassium permanganate. Nozzle of small funnel placed between eyelids, fluid allowed to flow from a reservoir held about thirty centimetres above the eyes, night and morning. *Kalt*, ii. I-15.

Swelling of the eyelids sometimes follows use of Crédé's method; 1 to 150 solution quite as efficacious; 2000 cases in support of this view. *Budin*, ii. I-15.

(See also Lids, Diseases of.)

GONORRHŒAL OPHTHALMIA. Infant in which gonorrhœal ophthalmia appeared on fifth day; on seventh bleeding from vagina, on eleventh day pus showing gonococci. *Koblank*, ii. I-15.

Similar case with more intense local symptoms, confined to genital organs. *Morgenstein*, ii. I-15.

Gonorrhœal rheumatism in an infant, 25 days old, with ophthalmia. Fluid drawn from knee-joint contained gonococci. *Haushalter*, ii. I-16.

GENITO-URINARY TRACT. No bacteria during first twelve hours of life in vaginæ of twenty-five infants. After third day micro-organisms always present, and in 14.6 per cent. streptococci. *Vahle*, ii. I-16.

Death at 6 weeks from pelvic and abdominal cystic tumor due to imperforate vagina. *Heaton*, ii. I-16.

Newborn infant with conjunctivitis and pustule on the gum containing gonococci. *Leyden*, ii. I-16.

Case of an eight months' fœtus in whose bladder nearly seven pints of urine were found. Urethra impervious. Deficiency of urea in the urine. *Devé*, ii. I-16.

Immediately after birth urine charged with urates which arise from a secretion of the epithelial cells of convoluted tubules during fœtal life. Normal leucocytosis the

cause of increased uric acid. *Flensburg*, ii. I-16.

Urine of the newborn only moderately toxic; seems to contain same elements as that of adults. *Cassaet*, ii. I-16.

Case of rupture of the perineum in an infant at birth. Tait's operation. Cure. *Sawicki*, ii. I-17.

Inversion of the urinary bladder through an opening in the abdominal wall. Terminated fatally. *Feinberg*, ii. I-17.

NERVOUS SYSTEM.

TETANUS NEONATORUM. Singularly prolonged epidemic of this affection in Scotch Hebrides. General asepsis and antiseptic care of umbilical stump. *Turner*, ii. I-17.

Tetanus in twins born under favorable conditions. Hypodermic injections of sterilized salt solution, 2 ounces every three hours; $\frac{1}{100}$ grain hydrobromate of hyoscine at three-hour intervals. Both recovered. *Kleiner*, ii. I-17.

Susceptibility of negro race to this disease. Sepsis the most important etiological factor. *Dorland*, ii. I-18.

Case which began on tenth day after birth. Large doses of bromide of potash, chloral, and antipyrin; frequent warm baths. Recovery in five days. *Runge*, ii. I-18.

Out of a total of fifty-three infants treated by sero-therapy, thirty cured. Uncomplicated cases gave the most favorable results. *Franz*, ii. I-18.

Soil the source of the infectious element. Importance of differentiating the disease from cerebro-spinal meningitis. *J. Lewis Smith*, ii. I-18.

MENINGITIS. Fatal case of cerebro-spinal meningitis in an infant 6 days old. Warning as to necessity of guarded prognosis in this disease, and in all cases of infantile convulsions. *Rotch*, ii. I-18.

RESPIRATORY SYSTEM. During first ten days of life average number of respirations 50 per minute. Average expiratory exhalation during first ten days 45 cubic centimetres. The first respiratory movements after birth do not unfold the lungs, the process being a very gradual one. *Dohrn*, ii. I-20.

PSEUDOMEMBRANOUS ANGINA. Form of pseudomembranous angina, caused by streptococci and occurring in the course of septicæmia, in newborn and nurslings. False membrane, the same as in diphtheria, extends rapidly, but does not involve the larynx and trachea. Temperature normal or even subnormal. Cases always sporadic, resemble diphtheria, but lack contagious character of the latter. Result of streptococci. *Epstein*, ii. I-20.

SKIN. Much importance should be attached to infections of the skin and by the skin in infants. Infection by common microbes of suppuration frequent. *Hulot*, ii. I-21.

Icterus with fever on the second day of life in a child, of a syphilitic mother, born at term, and resulting fatally on the fifth day. *Bar and Rénon*, ii. I-21.

Premature infant, whose mother had had a severe hæmorrhage several days before its birth, with bronzed skin, yellow and ecchymosed sclera. *Baumel and Boiadjieff*, ii. I-21.

Case of psoriasis which developed a few days after birth and involved the entire surface of the body. Combined with it was a general eczema. *Rille*, ii. I-21.

Three cases of sclerema in premature infants, all fatal. *Schmidt*, ii. I-21.

Case of the same disease ending in recovery. *Garrod*, ii. I-21.

Case of multiple subcutaneous sarcoma recognized at birth. *Karewski*, ii. I-21.

Two cases of contagious zona in children in the same family. *Réné Millon*, ii. I-22.

Case of scaly exfoliation resembling ichthyosis sebacea in an infant, 1 day old, that died on the second day. Skin uniformly dry, shiny, brownish yellow in color. *Grass and Torok*, ii. 1-22.

TUMORS. Three cases of mammary abscess in the newborn resulting from pressure. *Comby*, ii. I-13.

Similar case, resulting in suppuration, lymphangitis, and axillary adenophlegmon. Death. Abscesses of this character usually benign unless due to infection at birth. *Pestalozza*, ii. I-13.

Sarcoma of the kidney in a still-born infant. *Semb*, ii. I-13.

Congenital sarcoma of the intestine. Death on the fourth day. *Stein*, ii. I-13.

Tumor in the lumbar region penetrating to spinal canal. Rare variety of keratoma,—a kind of secondary spina bifida. *Schwab*, ii. I-13.

Report of twenty cysts and ten fistulæ of the neck, of congenital origin; also of six cystic tumors in the region of the sacrum. *Hildebrand*, ii. I-13.

Congenital osteosarcoma of the skull. *Neufeld*, ii. I-13.

DEFECTS, DEFORMITIES, AND BIRTH INJURIES. Case of congenital defect of the sternum, hernia of left lung resulting. *Hock*, ii. I-13.

Two cases of abnormal Meckel's diverticulum; death on fifth and tenth days, respectively. *Brundeau*, ii. I-13.

Enlarged thymus gland in an otherwise well-developed infant; death in tenth week from convulsions. *Bremner*, ii. I-14.

Facial paralysis resulting from the use of forceps. *Laskine*, ii. I-14.

Paralysis of the arm following fracture of the humerus during shoulder presentation. *Loviot*, ii. I-14.

NEWBORN, DISEASES OF (continued).

Traumatic hæmatothorax in a case of breech presentation. *Gebhard*, ii. I-14.

UMBILICUS. In umbilical stumps with much Wharton's jelly, as latter dries ligature becomes loose and hæmorrhage takes place. To obviate this, stump first ligated, as usual, ½ inch from cut end, leaving ends of ligature sufficiently long, then drawing them over top of the stump and tying a second time, this knot being at right angles to the first. *Budin*, ii. I-25.

Case of umbilical tumor which proved to be an extruded Meckel diverticulum. Excision, enterorrhaphy, and recovery. *Broca*, ii. I-25.

Case of congenital fæcal fistula at umbilicus, due to persistence of omphalo-mesenteric duct. *Clayton*, ii. I-25.

Applications of a 2-per-cent. solution of nitrate of silver to stump twice daily to hasten detachment. Usually falls on third or fourth day. *Schliep*, ii. I-25.

At Dantzig Obstetric Clinic cord tied with fine-linen tape soaked in 3-per-cent. solution of carbolic acid, and divided four fingers' breadth from the navel. Stump dressed with sterilized cotton smeared with carbolized vaselin, then linen bandage. Dressing changed daily after the bath. *Hermes*, ii. I-25.

Fever may be present during normal healing of umbilical wound, and the cord may slough without fever. Fatal case. *Grosz*, ii. I-26.

Infection of umbilicus rarely occurs by medium of vaginal secretions or liquor amnii, but by dirty hands. *Ehrendorfer*, ii. I-26.

Case of hernia cured by persistent pressure over umbilical ring. *Hecht*, ii. I-26.

Case of persistent bleeding from navel. In spite of pressure, styptics, and transfixion, bleeding persisted and resulted fatally. *Wernitz*, ii. I-26.

[Cases in which ligation of the umbilical wound is ineffective should be very rare. Even in poorly-nourished, hæmorrhagic infants it rarely occurs that effective ligation of the wound is not possible. A wound of this character is so accessible that successful arrest of hæmorrhage is almost always possible if sufficient care be used. ANDREW F. CURRIER, Assoc. Ed., ii. I-26.]

Case of hæmorrhage from the umbilicus, intestines, and under the skin. Continued three days and gradually subsided. *Holt*, ii. I-26.

Fatal case of hæmorrhage in a newborn infant in spite of most careful efforts to check it. Autopsy showed cause to be degeneration of walls of the vessels. Remote cause believed to be syphilis. *Nammack*, ii. I-27.

Case of endoperiphlebitis of syphilitic origin. *Macé and Durante*, ii. I-27.

Case of syphilitic periarteritis which resulted fatally. Thrombus around umbilical vein extending to liver. *Bar and Tissier*, ii. I-27.

NITROBENZOL, POISONING.

Six cases. Nitrobenzol is used in perfumery as substitute for essence of bitter almonds. Twenty drops may cause death. Usual symptoms headache, vertigo, vomiting, cyanosis, dyspnœa, trismus, etc. In three cases increased knee-jerks and ankle-clonus. Washing out stomach, artificial respiration, stimulation. Bath with cold douche. *Schild*, v. D-14.

NOMA.

Twenty-four cases in patients from 6 months to 8 years of age, all children of poverty-stricken people living in highly-malarial city of Peking. Left cheek favorite site of gangrenous spots; in several cases disease first appeared in the gums in median line, rapidly destroying them, with alveolar process. R. COLTMAN, Corr. Ed., iv. A-44.

NUTMEG, POISONING.

Case due to eating two nutmegs at night and the same quantity next morning. Pulse 120; pupils widely dilated, not contractile to light. Pain in region of umbilicus. Strong tea, tablets of digitalis, strophanthus, belladonna, and nitroglycerin. One grain caffeine citrate every hour or two. Recovery. *A. L. Hodgdon*, v. D-14.

Case in which two nutmegs had been taken. *T. G. Simpson*, v. D-15.

NYMPHOMANIA. See INSANITY.

NYSTAGMUS. See EYE, DISEASES OF.

OBESITY.

Thyroid juice 15½ minims daily by cutaneous injections or by the mouth. In three months weight reduced about forty pounds. As soon as treatment discontinued, loss of flesh ceased. Similar cases observed by others. *Charrin*, v. A-17.

Thyroid gland of sheep a specific. Free from danger and injurious after-effects. Sole risk is in beginning with large doses; palpitations; fainting fits possible. *Guttmann and René Buquin*, v. A-17.

Hot sea-baths 100° to 104° F., from 30 to 45 minutes. *Gérard*, v. A-177.

OBSTETRICS.

ASEPSIS IN MIDWIFERY. Although in dystocia or operative labors vaginal and even uterine injections are necessary, in normal labor in healthy women such procedures are more hurtful than useful, and often cause acceleration of the pulse and elevation of the temperature. *Leopold*, ii. H-1.

Statistics of mortality show that in 10,000 confinements proportion of deaths from pu-

erperal fever has been greater since 1880. *Hans Meyer*, ii. H-1, 2.

Vaginal injections after parturition useless in the majority of instances; vagina in reality an aseptic region, and does not contain any pathogenic micro-organisms. *Sébilleau*, ii. H-2.

Douching disturbs rest and quiet and is unscientific on surgical grounds; does not lessen dangers accruing from presence of bacteria in the vagina. In normal cases vaginal mucus strongly acid and destructive to pathogenic cocci. Antiseptic injections, therefore, interfere with this normal acidity. Douching dangerous; apt to disturb clots and open avenues for infection. *Wright*, ii. H-2.

At obstetrical clinic of Zurich mortality through puerperal infection only 1 per 1000. Except in cases in which it is necessary to manipulate the uterus ante- and post-partum irrigations avoided. *Wyder*, ii. H-2.

Methods practiced in city institutions, compared with those in private practice of four physicians, shows chief differences the omission by the latter of vaginal douche before and after labor and of shaving of pubes. *A. Y. Reid*, ii. H-2, 3.

Worse cases of midwifery usually occurred in maternity hospitals; yet these now give a smaller mortality-rate than private practice. In latter physicians do not do what they ought to secure asepsis. The nurse should not examine the patient. *R. A. Murray*, ii. H-3.

Antiseptic solutions should remain by the patient's bedside, ready for use immediatly prior to touching the patient, after carefully washing and scrubbing the hands. Sublimate lotion for the hands, carbolic lotion for the instruments, and iodine-water for the uterus. *Tarnier*, ii. H-3.

[Alcohol 95 per cent. for the hands, sterile water for instruments, and creolin or lysol for irrigation are preferable. E. H. Grandin, Assoc. Ed., ii. H-3.]

PRESENTATIONS.

BREECH PRESENTATION. When, in a woman who has passed the sixth month of pregnancy, a sharp pain is produced by placing the hand on the fundus uteri, it may almost be affirmed that there is a breech presentation. *Pinard*, ii. H-4.

Case of atrophy of the head of the femur following separation of the epiphysis due to the fillet. *Bar*, ii. H-4, 5.

Both soft parts and bones liable to be damaged even when employing the fillet with the greatest care. *Charpentier*, ii. H-5.

Traction of the instrument to be aided by passing the hollow of the hand into the concavity of the sacrum and exercising further traction. *Guéniot*, ii. H-5.

Uterine expression an aid to the fillet. *Budin*, ii. H-5.

Application of two fillets, one on each thigh. *Porak*, ii. H-5.

Fillet should be used in dorso-anterior and the forceps in dorso-posterior positions. By that principle fractures thus are avoided. *Maygrier*, ii. H-5.

Fillet to be protected by enveloping it in a rubber tube. Accidents always avoided. *Olivier*, ii. H-5.

FACE. Occur once in 137 cases. Genupectoral position of patient advisable to aid rotation of the chin. All manual interference to be undertaken only in definitely ascertained cases, for fœtus which presents by the face will often come safer thus into the world than if its presentation be modified. *Muggia*, ii. H-3, 4.

Mento-anterior presentations, previously looked upon with dread, are now known to be practically devoid of danger to both mother and child. *Baldwin*, ii. H-4.

When a face presentation develops at the end of first or second period, delay dangerous in interests of the child. First effort should be to change presentation into an occipital one. Fœtus must be movable, and mouth of womb sufficiently open to permit introduction of at least half a hand. *Thorn*, ii. H-4.

OCCIPITO-POSTERIOR. If occiput does not rotate forward and head does not advance, attempt should be made to rotate it forward with the hand; this can often be accomplished. If occiput is to the right, the left hand is introduced and the head seized, the thumb being placed behind the ear. The head then rotated from right to left and from behind forward; hand retained in position, otherwise occiput will again turn backward. The right blade of forceps now introduced and entrusted to an assistant. By this means, when left hand is withdrawn, head retained in place. Left blade then applied and blades locked. *Tarnier*, ii. H-5.

UTERINE RETARDING CONDITIONS.

INERTIA. When dilatation of cervix delayed on account of insufficient uterine contraction, movable fœtal head may be found nearly always above the entrance of the true pelvis. Forced engagement of child's head in the pelvic cavity, by manual pressure exerted through the abdominal walls, advised. Most efficacious treatment requires energetic pressure, during profound chloroform narcosis. Bladder emptied and membranes ruptured before beginning operation. *Kielman*, ii. H-5, 6.

Case of complete uterine inertia. Child distinctly heard crying *in utero*; $\frac{1}{25}$ grain strychnia injected; fundus grasped with both hands. *J. Lee Hagadorn*, ii. H-6.

TREATMENT. Strychnine in sixteen cases of insufficient uterine contraction. In fourteen cases labor ended rapidly and without accidents, children all living. Involution perfect. *Olenine*, ii. H-6, 7.

OBSTETRICS (continued).

Case in which, after a subcutaneous injection of strychnine of $\frac{1}{64}$ grain, child was born in state of asphyxia; cord was barely cut when the child was taken with tetanus, but recovered. Tetanus proved that the strychnine had passed through the placenta into the circulatory system of the child. Preferable to use even weaker doses; involution regular, but lacteal secretion slight, though patient always had a great deal of milk. *Abrajanoff*, ii. H-7.

Tartar emetic an admirable oxytocic; 10 grains in $\frac{1}{2}$ tumbler of water, giving 2 teaspoonfuls every ten or fifteen minutes till free emesis ensues. *John T. de Mund*, ii. H-7.

A glycerin suppository in the rectum has the effect of stimulating the uterine activity. *Franeis P. Cowan*, ii. H-7.

Succinate of ammonia very useful in partial contraction of the internal os. *Remy*, ii. H-7.

Quinine given during pregnancy may cause uterine contractions and bring on miscarriage, therefore recommended as an oxytocic. *Coromilas*, ii. H-7.

Glycerin injected into the uterus does not possess reliable action; dangerous owing to changes it produces in the blood and kidneys. Death of fœtus may result. *Ferrari*, ii. H-7.

Morphine useful; by partially doing away with the pain it enables the mother to assist expulsion by voluntary contractions. Should be carefully used in primipara; pain indirectly protects perineum. *Kielmann*, ii. H-7.

RIGID OS UTERI. Cocaine cones containing $\frac{1}{2}$ grain in cocoa-butter used in two cases; only result protracted labor in both cases. Unfailing plan is to introduce one blade of forceps and to press it gently and steadily against the os, keeping it *in situ* with one finger. The os gradually and steadily relaxes. *W. Donavan*, ii. H-8.

Rapid dilatation of the cervix by means of placental forceps; steady pressure of twenty or thirty seconds with intervals of ten to fifteen seconds; in ten minutes os dilated. *T. F. Taylor*, ii. H-8.

Incision of the os unaccompanied by danger when full attention is paid to the rules of antisepsis; twenty-seven cases in which perforation of the fœtal head was avoided by incisions of the cervix. Mortality, one mother and one child. *Dührssen*, ii. H-8, 9.

VULVO-VAGINAL RETARDING CONDITIONS. The vaginal orifice bears a retarding influence upon delivery in primipara. *Brindeau*, ii. H-9.

Case of dystocia through retraction of Bandl's ring. *Chambrelent*, ii. H-9.

Obstructed labor due to stricture of the vagina. *Rawson*, ii. H-9.

Case of unruptured hymen at full term of pregnancy; ruptured in the application of the forceps; no perineal laceration; labor lasting forty-five hours. *Ensor*, ii. H-9.

Case in which acquired annular stenosis of the vagina prevented delivery. *Goldberg*, ii. H-9.

COMPLICATIONS.

FUNIS. (See also Newborn, Diseases of.)

COILING. Slight traction sufficient to arrest the circulation of the umbilical cord where there is but a single knot in the cord. Perceptibly stronger traction necessary when there are two. *Lefour and Oui*, ii. H-12.

Asthenia of the cord may arrest circulation (1) when, owing to knots, calibre of vessels becomes so small that child is not nourished; (2) when torsion of cord is sufficiently pronounced to produce flattening and obliteration of the vessels. *Tarnier*, ii. H-12.

In coiling about the neck the woman should be placed in a sitting or squatting posture, as in this position abdominal tension is increased, and action of gravity brings the uterus farther down. *McGillieuddy*, ii. H-13.

Case in which cord was found entwined around the left thigh in form of a slip-knot; every movement of the leg caused it to draw tighter. *Bishop*, ii. H-13.

Instance in which funis coiled seven times around the neck and once around the left shoulder. It measured over sixty-five inches. *Wygodzky*, ii. H-13, 14.

PROLAPSUS. Apparatus for replacing prolapsed funis. Two loops of tape, upper and lower, stitched together. Cord put through the lower loop; upper loop carried up into the uterus on a catheter. *Harvey*, ii. H-14.

RUPTURE. Case of rupture of the umbilical cord at its placental insertion during delivery. *Sequeira*, ii. H-14.

According to Erös, 68 per cent. of umbilical wounds do not heal in a normal manner; of these, 45 per cent. suffer from fever. Too often cleanliness is neglected. Experiments showing that best results are obtained when cord is cut as closely as possible and bandage changed when absolutely necessary. *Doktor*, ii. H-14.

PLACENTA. Frequency of insertion of placenta upon lower segment of uterus. In 6946 labors, 2908 times inserted at nine centimetres from internal orifice; 3938 times inserted at less than nine centimetres. Central insertion never observed. *Maggier*, ii. H-15.

RETENTION OF PLACENTA OR PLACENTAL REMAINS. Case in which placenta retained *in utero* one year. Impregnation; fœtal sac located over os internum. Hæmorrhage as in placenta prævia. *Gallant*. ii. H-17.

Retention of placenta for thirteen days due to hour-glass contraction. Septicæmia; recovery. *Douthwaite*, ii. H-17.

A lobe of placenta sometimes remains adherent. If retained mass be attached to placenta, examination will show where it was broken off. If a placenta succenturiata, open mouths of vessels which had connected the two placental masses will be seen. *Budin*, ii. H-17.

Changes which non-septic fragments of placenta may undergo when left attached to uterine wall: (1) simple sclerosis; (2) benign deciduoma; (3) hydatidiform mole; (4) malignant deciduoma. Prominent symptom, frequent metrorrhagia. *Hartmann and Toupet*, ii. H-18.

Case of placental polypus with frequent metrorrhagia. *Lejars and Lévi*, ii. H-18.

Case of hæmorrhage after abortion, in which a medical man, after curetting, had introduced a polypus-forceps into the uterus to remove some remains of the placenta and dragged part of intestine into the vagina. Laparotomy; found uterine wall thinned away in every part. Recovery. *Alberti*, ii. H-18.

Almost identical cases which had occurred in practice; not, as a rule, with the same fortunate results. In this connection polypus-forceps a most dangerous instrument. *Veit, Olshausen, Gusserow and Orthman*, ii. H-18.

Case in which a very busy practitioner extracted about thirty inches of intestine, which he tore from the mesentery. Strong plea against use of polypus-forceps in such cases. *Martin*, ii. H-18, 19.

Two conditions needed to insure safety and efficiency when curette used. Cervix must be well dilated and uterine cavity well explored by the finger. Chloroform needless. A cutting, not blunt, curette should be used, followed by swabbing with creasoted glycerin and intra-uterine injections; then plugging with iodoform gauze. *Oui*, ii. H-19.

PLACENTA PRÆVIA. In one of two Breslau institutions proportion of placenta prævia 1 in 216; in the other, 1 in 42. *Boss*, ii. H-15, 16.

As soon as internal os can be entered by one or two fingers, placenta bored through, avoiding the amnion. By rubbing over fundus with other hand contraction excited to make amnion protrude into the tear, finally tamponing vagina with iodoform gauze. *Nijhoff*, ii. H-16.

Case in which there was spontaneous delivery by passage of the head through the placenta. *Brindeau*, ii. H-16, 17.

Case of placenta prævia with twin pregnancy. Placenta of the first expelled. Puerperium uncomplicated. *Palchowsky*, ii. H-17.

Case of twin labor with placenta prævia centralis. *Kahn*, ii. H-17.

Case of air-embolus in placenta prævia. Air had penetrated between uterine wall and detached placenta when hand introduced to practice version. Heart-movements ceased immediately. *Henck*, ii. H-17.

Case of placenta prævia followed by tetanus. *Dibrell*, ii. H-17.

POST-PARTUM HÆMORRHAGE. Flooding after application of forceps must always be expected, since instrument is usually employed because of uterine inertia. *Tarnier*, ii. H-14.

Case of secondary post-partum hæmorrhage eighteen days after labor; septicæmia; death. *E. L. Tompkins*, ii. H-14.

Cases of hæmorrhage caused by rupture of circular placental sinus. *Budin, Hirigoyen, Lugeol*, ii. H-15.

Spirits of turpentine on a piece of lint, introduced into the uterus and held against the walls, causes rapid contraction. *Mayne*, ii. H-15.

Two cases treated successfully by Dawbarn's method of saline arterial infusion. *Moore*, ii. H-15.

INVERSION OF THE UTERUS. One hundred cases of complete inversion of parturient uterus. Conclusion that most cases happen without interference or manipulation. Most cases occur between the ages of 20 and 30. Vigorous, spontaneous expulsion of child chief cause. *Beckmann*, ii. H-19.

Case, in a primipara 42 years old, in which exhaustion had caused fundus to give way to simple atmospheric pressure, while occlusion of vagina had prevented access of air in the interior of the uterus. *Von Herff*, ii. H-19.

Case of spontaneous involution of the uterus after acute inversion in a primipara of 42 years. *Vogt*, ii. H-19, 20.

Post-partum inversion of three months' duration reduced in thirty-four hours with Aveling's repositor. *A. E. Aust-Lawrence*, ii. H-20.

RUPTURE OF THE UTERUS. In ruptured uteri elastic fibres are modified throughout entire body of the organ, but rupture occurs at the spot where the modifications are most accentuated. Spontaneous rupture only occurs when there is alteration in constituent portions of uterus. *Davidoff*, ii. H-20.

Great importance must be conceded to predisposition, without which the mechanical factors are not sufficient to explain all cases. May be acquired from illness, degeneration, (hyaline or fatty), cicatrices, previous ruptures, local thinning of uterine wall, placenta prævia, or congenital. *Sänger*, ii. H-20.

Case of rupture at onset of labor; rare. Death thirty-six hours after birth of child,

OBSTETRICS (continued).

with symptoms of peritonitis and exhaustion. *Wm. Harris Best*, ii. H-20, 21.

Rupture on a level with the neck consequent upon a cicatricial septum of the vagina. *Brunon*, ii. H-21.

Case in which, in performing version, lower uterine segment ruptured just above an adhesion across latter. Complete recovery. *Armin Treu*, ii. H-21.

TREATMENT. If rupture diagnosed and child has escaped into abdominal cavity, it should be extracted quickly by laparotomy; if only partially escaped, extraction through natural passages if possible. Tampons or pressure of no use in controlling hæmorrhage. Where loss of blood sufficient to threaten life, abdomen should be opened and bleeding vessels secured. If bleeding has stopped, absolute rest and opium. No vaginal douches. *Fritsch*, ii. H-21.

After extraction of child tampons of iodoform gauze introduced through vagina. Two cases successfully treated by this method. Prognosis depends largely on fact whether labor has been conducted aseptically or not. *Fenner*, ii. H-21.

Case in which suture of edges of tear through the vagina successfully performed after uterus had been drawn down by means of a volsella. Strip of iodoform gauze introduced into peritoneal cavity and left *in situ* until the eighth day. Uterine cavity and vagina also packed with iodoform gauze. Arrest of bleeding and recovery. *Cholmogoroff*, ii. H-21, 22.

RUPTURE OF THE PERINEUM. Obstetrical fault of olden times was to leave patient undelivered too long. Obstetrical fault of the present day is to terminate confinement altogether too soon—often to save the doctor's time. *A. Lapthorn Smith*, ii. F-99.

Following conditions lead to too sudden passage of the head over the perineum : (1) a sudden surprise given to the woman as head is being born; (2) strong and sudden combined action of uterus and abdominal muscles when the head is bulging the perineum; (3) too rapid delivery by operative interference; (4) a small head advancing rapidly and dilating the vulva quickly; (5) deformed pelvis, in which there may be a large outlet through which the fœtus passes quickly. *G. von Woerz*, ii. H-46, 47.

A cause of rupture not generally recognized is chronic passive congestion, from pressure of the uterus above, of the veins of the anal and perineal region, leading to piles, with local swelling of the former, and to a condition of œdema of the latter, with impairment of nutrition from interference with local circulation. *Barnes*, ii. H-47.

TREATMENT. New method for the preservation of the perineum. When occiput is born, pressure of the perineum pushes the base of occipital bone under pubic arch, and extension is caused. Accoucheur should substitute force to maintain flexion (*q.v.*). *D. B. McCartie*, ii. H-47, 48.

Never had a failure in immediate closure of the perineum, either partial or complete, but a number of times complete failures of closure in attempts made from eight to twelve hours after labor. Weight of evidence of every obstetrician and surgeon of extended experience shows that immediate repair of injury is indicated. *Mordecai Price*, ii. H-48, 49.

Strong plea for immediate suture; operation easy while vagina relaxed and while cervix can readily be drawn down to the vulva. Hæmorrhage from circular artery at once arrested; septic abortion prevented. *Dudley*, ii. H-46.

But one indication for immediate repair of torn cervix,—hæmorrhage. *William R. Pryor*, ii. H-46.

[Remarks of the author were opposed almost *in toto* by the various speakers, and primary trachelorrhaphy was strongly advocated. Ed.]

In Emmet's operation chances of success increased by first stretching sphincter, to counteract evil effects of disease and atresia. Thorough attention to bowels before and after operation. *Burrage*, ii. F-99.

Importance of avoiding traction on perineal muscles when operation ended; complete abduction of thighs during convalescence ; deep dissections in every case. *Mayfield*, ii. F-100.

MATERNAL DYSTOCIA.

CONTRACTED PELVIS. Record of 196 labors in cases of kyphotic pelvis in 113 women; 126 full-time, normal labors; 14 premature. Of 113 women, 46 died,—14 after Porro or Cæsarian section; 2 died undelivered and 10 after forceps were used. *Neugebauer*, ii. H-22.

Kyphotic pelvis met with but rarely in labor,—1 case in 6016. Usual position and presentation present in 97 per cent. of cases. In one-third of head presentations back of child directed posteriorly. *Klein*, ii. H-22.

. Of 6000 cases of pregnancy contraction of the pelvis noted in 654,—$10\frac{9}{10}$ per cent. In $86\frac{8}{10}$ per cent. delivery spontaneous. In all of these contraction slight, true conjugate being $3\frac{1}{2}$ to $3\frac{1}{8}$ inches. In the 654 cases one maternal death. Of 663 children, 31 still-born. *Austin Flint*, ii. H-22, 23.

Results in 60 labors in various forms of contracted pelvis : 25 spontaneously delivered. Delivery induced 38 times, principally by Kraus's method; 14 times labor normal, 4 times by aid of forceps alone, and 3 times after symphysiotomy. No maternal mortality; infantile mortality, 5. *Guéniot*, ii. H-23.

While Müller's method for determining

indications for induction of labor by pressing head of child into pelvic brim has advantages, it is not to be relied upon solely. A fœtal head which cannot be pressed down into pelvis can be brought through after version, the breech preceding. *Ahlfeld*, ii. H-23.

Two cases in which deformity of the coccyx caused dystocia and death of the child. In both cases at renewed parturition coccyx was fractured from the sacrum by pressing forcibly backward with thumb in vagina, permitting delivery. *E. A. Tucker*, ii. H-23.

INDUCED LABOR. Patient in dorsal position with legs flexed; vagina thoroughly injected with mixture of creolin and water (1 drachm to a pint). A new, solid bougie, thoroughly sterilized by immersion in solution of mercuric chloride (1 to 500) for several hours, is passed, guided with fingers or through speculum into uterus; by gently twisting it the bougie is allowed to insinuate itself between membranes and uterine wall. Great care not to rupture membranes. When two inches of bougie remain in vagina, light tampon of iodoform gauze inserted into vagina and vulva covered by a sterilized pad. If introduced in afternoon, softening and partial dilatation of cervix will occur usually by morning. If not, first bougie taken out, washed, patient given an antiseptic vaginal douche, and first bougie re-inserted with a second. Barnes's dilators generally employed to complete dilatation. *E. P. Davis*, ii. H-24.

Simplified method of detaching membranes in induced labor. Irrigation of inferior segment with sterilized water or boric-acid solution, using an Esmarch glass irrigator joined by rubber tube to a glass S-shaped cannula half a centimetre in diameter. Danger of introducing air into uterine cavity avoided by letting liquid flow as sound is being introduced. One or two quarts usually sufficient. Labor usually sets in from five to six hours; fifteen cases. *Kufferath*, ii. H-24.

Method very slow. More successful with deep injections of only 3¼ ounces of fluid, using a long sound. *Lazarewitch*, ii. H-24, 25.

Kufferath's method a good one; but two cases in which use of Kiwich's douche was followed by sudden death. *Tarnier*, ii. H-25.

Vagina rendered aseptic by thorough use of soap and brush, followed by douching with antiseptic solution. Cervix drawn down with bullet-forceps; sterilized gauze packed into canal through internal os. Packing continued in vagina until it is completely tamponed. This procedure softens os and may alone bring on labor. If not, patient anæsthetized with chloroform · tampon removed, parts resterilized, one or two fingers passed slowly into cervix, flexed, and gradually withdrawn; three or four fingers, and finally whole hand, used in same manner. After repeatedly inserting whole hand and withdrawing it flexed, cervix sufficiently dilated for head to pass. Child delivered with forceps or by version, as required. Thirty-one cases; in one only cervical tear; at once sutured. Recovery. *L. M. Michaëlis*, ii. H-25.

Accouchement forcé recommended; employed successfully during several years. *J. H. Carstens*, ii. H-25.

MULTIPLE BIRTHS. Tendency to twin pregnancies, transmitted in families in the human race. One twin confinement among eighty. Weak vitality of twins demonstrated by Goehbert's statistics. Only 36.9 per cent. reach the age of 20 years. Twins are of limited fecundity. *Speyr*, ii. H-9, 10.

Influence of inheritance on the tendency to have twins shown by illustrative cases. *Tho. Wakley*, *Donald Macphail*, ii. H-10.

Multiple pregnancies generally due to simultaneous rupture of several follicles. Due to the abundance of ovules in the ovary. Multiplicity of twin pregnancies a manifestation of atavism. *Hellin*, ii. H-10.

Ratio of uni-ovular to bi-ovular twins as 1 to 3.7,—a much larger proportion of uni-ovular twins than other investigators have found. *Drejer*, ii. H-10.

Analysis of seventy-five cases of triple births; generally occur among multipara who have had abortions; belonging to families in which multiple births have already been observed. About one-half are viable. *Mirabeau*, ii. H-10, 11.

Case of triplet pregnancy in which two of the fœtuses died the fourth month and were expelled at term with a fully-developed child. *Charles*, ii. H-11.

Case of triplets, two of the fœtuses being acardiac. *Freudenberg*, ii. H-11.

Six children at one birth,—the first well-authenticated case on record. All born alive. *Vassali*, ii. H-11.

Case of twins in which one child was born six days before the other; both children lived. *Epsztein*, ii. H-11.

Case of twins with mummification of one fœtus. Living fœtus died some hours after birth from tetanus. *Ulceia*, ii. H-11.

Twin pregnancy in which one child was born alive and well and mummified fœtus expelled. *Lambinon*, ii. H-11.

Case of twin pregnancy with a blighted fœtus. *Grace Peckham Murray*, ii. H-11.

SUSPENDED ANIMATION OF FŒTUS; STILL-BIRTH. Experiments showing that methods of resuscitation which mechanically force air into the chest are especially favorable. Soft catheter introduced into the

OBSTETRICS (continued).

trachea advocated. *Zuntz and Strassmann*, ii. I-18.

Necessity of discriminating between livid and pale asphyxia, former giving a good prognosis, latter also if proper measures adopted. Schultze method of resuscitation is best. *Burkhardt*, ii. I-19.

Its success due to reflex irritation, which is referred to the respiratory centre through the motions of the base of the tongue. *Bernheim*, ii. I-19.

Schultze's method in two cases in which clavicle had been broken in extraction. Both recovered; broken bone united without deformity. *Keilmann*, ii. I-19.

Case teaching necessity of persistence in the treatment of suspended animation. *Turachaud*, ii. I-19.

Improvement over the Schultze method. Knees, hips, and spine bent in regular motions, knees touching the breast. Compression of abdomen with expiration results; by stretching out the body inspiration follows. As an alternative measure, suspension of body by the legs, thus facilitating ejection of inspired amniotic fluid and blood. Clearing the throat with the finger useful. *Rosenthal*, ii. I-19, 20.

Seven cases in which suspended animation successfully treated by clearing the throat of mucus and holding child in an inverted position until resuscitation occurred. *Bissell*, ii. I-20.

[This procedure is so simple and easy of application that it is worthy of trial before any of the more complicated measures are resorted to. ANDREW F. CURRIER, Assoc. Ed., ii. I-20.]

Subcutaneous injection of whisky or brandy. *Bedford Brown*, ii. I-20.

Heart continues to beat in very young embryos in the earliest stages. In embryos of monsters heart often beats quicker than in normal ones. In older embryos heart continues to beat long after death, indicated by complete opaqueness of tissues. *Féré*, ii. H-45.

New case of resuscitation by rhythmic traction of the tongue. Method decidedly superior to other processes for artificial respiration, particularly insufflation. *Laborde*, ii. H-45.

Better to practice insufflation with the mouth than with an insufflator; process neither irrational nor antiphysiological. *Tarnier*, ii. H-45.

Case successfully treated by Laborde's method. *Cameron*, ii. I-19.

PUERPERAL INVOLUTION. Subinvolution due to (1) frequent antiseptic injections; (2) abdominal bandage; (3) too early getting up. *Keiffer*, ii. H-35.

Patients should get up for a couple of hours daily, to recline on an easy-chair or sofa; involution thus favored. At least six weeks should elapse, however, before active occupations are resumed. *Charles*, ii. H-35.

At the beginning of puerperium diminution in size of uterine muscle to be attributed to glycogenic effusion of hypertrophied muscular fibres, with resorption of œdematous intermuscular fibrous tissue. *Broers*, ii. H-35, 36.

OBSTETRIC FORCEPS. Of 2926 deliveries in Basel Hospital, 156 were by forceps, 129 of which were primiparæ. Presentation in second position most frequent cause. In 132 cases perineum ruptured. Recommended use when pains diminish owing to prolonged labor, when head in proper position, when second stage has lasted more than two and a half hours. *Schmid*, ii. H-11, 12.

Use of forceps in 2920 labors showing better results than above. Mortality-rate renders it a serious procedure for mother and child. Other means of accomplishing delivery should be exhausted before recourse is had to the forceps. *Shick*, ii. H-12.

New axis-traction forceps, applicable during the entire passage of the fœtal head with ease and safety. *McGillicuddy*, ii. H-49.

Attachment by means of which force is applied nearer the resistance than in any other method. *Fisher*, ii. H-49, 50.

Préhenseur-levier-mensurateur takes the head and holds it solidly, procures powerful leverage, and enables the operator to ascertain the parietal diameter before making a definite resolution. *Farabeuf*, ii. H-50.

Very satisfactory use of Farabeuf's instrument at the Clinique Baudelocque. Case of twins. *Pinard*, ii. H-50, 52.

New lock for obstetric forceps. Flat-racked bar; can be put on any existing forceps. *Bourke*, ii. H-52.

AFTER-COMING HEAD. Protests against expectant treatment in cases in which head is arrested behind and above superior strait. Expression through abdominal wall not frequently enough resorted to. *Strassmann*, ii. H-25.

Case of retention of after-coming hydrocephalic head, in which entire left hand passed up to fœtal cranium; then opening made with Blot's perforator. Cerebral fluid, with brain-matter, soon came away; two fingers then passed into the perforation. Head gradually delivered. *Charles*, ii. H-26.

Stout piece of cord doubled; loop passed through the mouth and out by the pharynx; ends of cord taken outside the vagina and tied in a knot. Gentle traction then applied by means of cord, fingers of disengaged hand being passed up to the sharp edges of cervical vertebræ to protect maternal structures during the extraction. *Mackintosh*, ii. H-26.

SYMPHYSIOTOMY. Two chief obstacles to its popularity in England: (1) supposed difficulty in performing operation in patient's own house; (2) fear that division of symphysis may subsequently interfere with patient's power of locomotion. Greater familiarity will dispel former objection and extended experience shows that the fear of bad after-results unfounded. *Gow*, ii. H-26.

Most encouraging work in symphysiotomy in United States that of New York City, where 10 operators saved 19 out of 21 women and 18 of their children. Limit of symphysiotomy marked in the United States. As a rule, extends from a conjugate vera of $2\frac{3}{4}$ inches to one of $3\frac{1}{4}$ inches when the pelvis is flat and the fœtus of average size. But, in justo-minor pelvis or when fœtus weighs from 9 to 12 pounds or more, operation may be called for when measure is $3\frac{1}{2}$, $3\frac{3}{4}$, or even 4 inches. The average weight of male children delivered under symphysiotomy in the United States found to be $8\frac{7}{16}$ pounds; females, $8\frac{1}{16}$ pounds; hence folly to limit conjugate to below $2\frac{3}{4}$ inches if child to be delivered either by forceps or by version without death. *Therapeutic Gazette*, ii. H-27.

In Paris Pinard, in 48 cases, had 4 deaths; but in 44 cases, in which operation was performed under favorable conditions, only a single death. Main danger in symphysiotomy, loss of blood, but cause of death is too much delay in operating. *Lusk*, ii. H-27.

Pinard, to avoid hæmorrhage, places suspensory ligament of clitoris upon the stretch and divides it. Through opening thus made vessels pushed back with finger placed behind symphysis.

In many dissections made in Paris articulation always found in the median line. Asphyxia of child common because in United States and Germany no attempt is made by operator to separate ends of pubic bones, which are left to be forced apart by head of fœtus. In Paris, the bones are separated very evenly, by means of an instrument furnished with graduated arc. Separation carried to two and one-half inches, never more.

If forceps applied, greatest importance to have cervix fully dilated. After the birth, strong fibrous tissues should be united by silk ligatures and perfect union secured. *Lusk*, ii. H-28.

[The statement that in the United States there is almost always imperfect union is not in accord with recent reports, which state that only exceptionally has motion at the symphysis been detected months after operation. E. H. Grandin, Assoc. Ed., ii. H-29.]

When articulation is beginning to consolidate, adhesions easily broken. Proves necessity of fixation apparatuses; simple rubber belt covered with linen, passed under the loins, and connected with ropes which cross above the bed, pass over, and pulleys placed upon frame of bed. By attaching more or less heavy weights to the free ends of the ropes the pressure upon iliac bones may be regulated at will. *Tarnier*, ii. H-29.

Before commencing operation necessary to make sure that the pubic bones are movable. If the symphysis be ossified, the sacro-iliac joints are nearly always immobile and division of symphysis is of no use. A semicircular incision four inches in length, parallel to the lower border of pubes and commencing just above the commissure of labia majora, recommended. Healing by first intention more certainly obtained and hæmorrhage more readily controlled (*q. v.*). *Porak*, ii. H-29, 30.

Chief source of bad results, laceration of deep perineal fascia on separation of bones. After division of joint and before separating bones, the ligamentum arcuatum and deep fascia should be detached, with a blunt-pointed bistoury, from the bone on each side sufficiently to allow symphysis to separate to required extent. All the more dangerous complications of operation completely obviated. *Harris*, ii. H-30.

To avoid hæmorrhage soft parts should be gently, but freely, separated behind symphysis before dividing it. The stretching of soft parts is lessened in amount and distributed over a larger area. Symphysiotomy is extremely easy if suitable knife is on hand; a probe-pointed hernia-knife is too weak. *Braithwaite*, ii. H-30.

One hundred and fifty-eight female pelves examined. Pubic symphysis never ossified. In cases in which it is found necessary to use the chain-saw to cut symphysis, either the true position has not been recognized or it presents a somewhat abnormal disposition. *Queirel*, ii. H-30, 31.

Advisable not to generalize too much. Although among the 158 pelves referred to no ossified symphyses were found, others have, nevertheless, met with them. *Fochier*, ii. H-31.

Concurrence with this opinion. *Budin*, ii. H-31.

Symphysiotomy suited to pelves which are flat, generally contracted, or rachitic, with conjugate between $2\frac{3}{4}$ and $3\frac{1}{2}$ inches, provided pubic separation on delivery need not exceed $2\frac{3}{4}$ inches. If reasons to fear injuries to soft parts, Cæsarian section preferable. Symphysiotomy destined to replace embryotomy and perforation of living children. *Schwartz*, ii. H-31.

Opinion based upon five personal cases that symphysiotomy most successful in women not weakened by prolonged labor, in whom there was slight contraction of pelvis,

OBSTETRICS (continued).
no great disproportion between pelvis and head, and in women in whom vagina and vulva are well developed and distensible. Where patient has a poor constitution and liable again to pregnancy, cœliotomy followed by hysterectomy advisable. *E. P. Davis*, ii. H-31.

In pelves whose antero-posterior diameter ranges from $2\frac{2}{16}$ to $3\frac{6}{16}$ inches, in 30 cases, mortality-rate of children was less in middle range of pelvic contraction because pregnancy was interrupted after end of eighth month. The high mortality among children in larger pelves occurs because these patients call aid too late, when child has become too large to pass through the pelvis. *Tarnier*, ii. H-31, 32.

Personal statistics $18\frac{3.6}{100}$ per cent. mortality-rate for 200 cases after symphysiotomy. Results of induced labor and those of symphysiotomy do not recommend latter operation. *Pinard*, ii. H-32.

Induced labor will be the operation chosen in pelves whose antero-posterior diameter is more than $3\frac{1}{2}$ inches. Symphysiotomy should be performed in appropriate cases with antero-posterior diameter less than $3\frac{2}{16}$ inches. *Tarnier*, ii. H-32.

Permanent results in 12 cases: Subjective symptoms in all cases good, whether wire suture for bone (3 cases) or periosteal sutures. Only in two cases were there pains on getting up or lifting heavy burdens. Gait in all cases good. *Braun von Fernwald*, ii. H-32.

Out of 2000 confinements symphysiotomy performed thirteen times; slightest relaxation of the pubis never noticed. Maternal mortality *nil*, that of infants 10, 2 being already dead before the labor. *Queirel*, ii. H-32.

Case of mobility of the pubic joint following symphysiotomy treated by suture of bones. Result excellent. *Binaud*, ii. H-32, 33.

A case of symphysiotomy in which the child lived and the mother did well until the third day, when she died with symptoms of intestinal obstruction. Autopsy showed that death had been due to constriction of the cæcum and colon. *Addy*, ii. H-33.

Symphysiotomy performed twice on the same subject. *Guéniot*, ii. H-33.

Cæsarian operation deserves consideration. Sänger's mortality about 14 per cent.; that of symphysiotomy is 12 per cent. *Olshausen*, ii. H-33.

Craniotomy, in the light of modern surgical achievements, not indicated upon a living child. Symphysiotomy a perfectly justifiable operation. *Cecil*, ii. H-33.

CÆSARIAN SECTION. Statistics of 40 cases operated in the United States since 1888, mortality $22\frac{1}{2}$ per cent. In all properly selected cases mortality is not greater than 9 per cent. Craniotomy shows a mortality of 5 per cent.; induced labor 5 per cent.; hence Cæsarian section twice as dangerous for the mother as craniotomy or induced labor, but in proper surroundings doubtful whether maternal mortality is greater than craniotomy. Fœtal mortality is, of course, considerably less. *Haven*, ii. H-33, 34.

Comparative results of Cæsarian section with those of Porro's operation, based upon 164 cases of Cæsarian section. In latter mortality of mothers 22 per cent. and 2 per cent. for children. Porro's operation 25 per cent. for the mothers and 50 per cent. for children. The best time to perform Cæsarian section is just before or just after commencement of labor; if membranes are not ruptured, especially favorable. Rapidity in operation of the greatest importance. *Demelin*, ii. H-34.

Perforation can be done without any help, while in Cæsarian section three skilled assistants are required; in country-practice latter not easily found. Statistics showing that Cæsarian section is an operation for hospitals and town-practice, perforation for country-practice. *Dolder*, ii. H-34, 35.

Instead of incising the uterus layer by layer a button-hole made at first with bistoury, then completing section with scissors. After extraction of fœtus, dose of ergotine subcutaneously; dressing of the abdominal wound removed as rarely as possible. *Tarnier*, ii. H-35.

ŒDEMA. (See also Heart, Diseases of; Laryngitis; Lungs, Diseases of.)

ANGIONEUROTIC. Family whose members had, during three generations, suffered from acute recurrent œdema of the skin. *Ricochon*, iv. A-44.

Case of angioneurotic œdema, with urticaria. *J. W. Russell*, iv. A-44.

VASOMOTOR. Affection observed in seven male patients consisting essentially in the production of considerable œdema without any lesion of heart, lungs, liver, or spleen. Reduction of hæmoglobin in all cases. Of seven, syphilis in five; may also be due to other infectious diseases whose toxins are capable of causing alterations analogous to those which, for instance, cause diphtheria paralysis. *Tchickoff*, iv. A-44.

ŒSOPHAGUS.

CANCER. Case of perforation of a carcinoma of the œsophagus into the aorta,—an exceedingly rare occurrence. *Ewald*, iv. D-111.

Allusion to Benda's specimens of carcinoma of trachea and œsophagus, one perforating aorta. Abundant hæmatemesis the first symptom. *A. Fraenkel*, iv. D-111.

Case of epithelioma of the œsophagus with perforation into the trachea. *Leech and Grosvenor*, iv. D-112.

TREATMENT. Case of stricture of the œsophagus due to carcinoma treated with carmine, first given in coated pills, then in solution, in daily doses of 9 grains. Gradual diminution until disappearance of ganglia along internal border of sterno-cleido-mastoid muscle. Followed by pyoktanin, solution of 15 to 100, 6 teaspoonfuls daily; fresh improvement. *Moravitsky*, iv. D-112.

Case which, under use of catheter and specific treatment, showed such improvement that a cure was thought to have been effected; one month after, patient returned to hospital to die. Case of remission. *Ramond*, iv. D-112.

FOREIGN BODIES IN THE ŒSOPHAGUS. Statistics of 165 cases of œsophagotomy; mortality of 23 per cent. Causes of death, starvation, perforation and abscess, secondary hæmorrhage, pneumonia, etc. (For conclusions see text.) *Silver*, iv. D-112.

Jack-stone in œsophagus, which pressed upon trachea and produced such dyspnœa that tracheotomy was necessary. *Taylor*, iv. D-113.

Case in which swallowing of a half-penny caused no symptoms. Death two months afterward from opening into innominate artery. *Atkins and Chaffey*, iv. D-113.

To remove fish-bone from the throat, 4 or 6 ounces of milk given to drink. In forty minutes dose of sulphate of zinc as emetic; milk goes down in fluid state, but becomes coagulated, and on coming up forces bone before it. *Van Allen*, iv. D-113.

STRICTURE OF THE ŒSOPHAGUS.

TREATMENT. Three reliable methods to prevent leakage, with absolute certainty. Witzel's preferable. Oblique canal produced by it closes spontaneously when tube removed, and a secondary operation unnecessary. *Willy Meyer*, iv. D-110.

Case in a woman four months pregnant; complete occlusion of œsophagus. Immediate gastrostomy, feeding patient through opening until child born. No further operation. A year later deglutition practically normal; rest following gastrostomy, then beginning to swallow fluids and later solids, may cause restoration of function. *Wyeth*, iv. D-110.

Case of œsophageal stricture of forty years' standing successfully treated by electrolysis. *W. S. Watson*, iv. D-110, 111.

Fourth case of cicatricial stenosis in which Witzel's method was performed; value in preventing leakage evident. *W. J. Mayo*, iv. D-111.

Case of stricture successfully divided with a string (Abbe's method) after gastrostomy. *F. W. Murray*, iv. D-111.

ONANISM.

In the male, somnambulistic masturbation dependent on psychological derangement. Three cases. *F. Cabot*, iii. E-32.

[Sometimes this condition dependent on seminal vesicular irritation. KEYES AND FULLER, Assoc. Eds., iii. E-32.]

Case in which there seemed to exist more or less atrophy in connection with prostate and seminal vesicles. *E. C. Burnett*, iii. E-32, 33.

In the female the secretion of præputium clitoridis often becomes hardened, and is held by a sort of superficial adhesion; in many cases removed with difficulty. This condition often associated with masturbation. Operation for removal of elongated clitoridis a very reprehensible practice. *Clara Barrus*, ii. D-39, 40.

TREATMENT. Monobromide of camphor, 2 to 8 grains daily, seems to exert control without deleterious effects caused by continued use of bromides. As a rule, tonic treatment necessary, but care necessary lest latter overstimulate and cause a return of the practice. *J. P. West*, ii. D-40.

OPHTHALMIA NEONATORUM.

See EYE, DISEASES OF; and NEWBORN, DISEASES OF.

OPIUM POISONING.

TREATMENT. Permanganate of potassium as antidote for opium poisoning. (See text and last year's ANNUAL.) *Moor*, v. D-15.

Personal claim of discovery of solution of potassium permanganate in 1884 as an antidote for morphine, opium, and laudanum. *J. Barker Smith*, v. D-15.

Potassium permanganate, in solution not stronger than 1 grain to the ounce, may be given by the stomach without danger; subcutaneously it is poisonous. Grain for grain, it completely decomposes morphine, in acid media more rapidly than in neutral. Foodstuffs do not interfere with action; an efficient antidote while morphine is in the stomach. *Graham Chambers*, v. D-15.

Report of cases; one in which quick recovery was obtained after ingestion of 60 grains of opium and after fatal issue had seemed almost inevitable. Record of thirty-five cases of opium poisoning in which potassium permanganate has proved its great value. Should be administered at once on reaching bedside. *W. Moor*, v. D-15, 16.

Case caused by 10 grains of morphine. Administered $2\frac{1}{2}$ grains of potassium permanganate internally and a like amount subcutaneously. Repeated at intervals of twenty minutes till patient rallied. No other remedy used except $\frac{1}{10}$ grain of nitroglycerin to stimulate heart. In two hours patient safe. *Eli Browning*, v. D-16.

[As the usual dose of nitroglycerin is

OPIUM POISONING (continued).

$\frac{1}{2000}$ to $\frac{1}{500}$ grain (0.00032 to 0.0013 gramme), the dose mentioned is evidently a typographical error, and should read $\frac{1}{1000}$ grain (0.00065 gramme). I should consider the dose given *very dangerous*. C. SUMNER WITHERSTINE, Assoc. Ed., v. D-16.]

Five cases, one in last stage of narcosis. Stomach washed, then 2 drachms of liquor potassi permanganatis every hour for four hours. Artificial respiration. Recovery. *N. Raw*, v. D-16.

Two deaths from morphine poisoning treated by usual measures; third case saved by potassium permanganate, quantity administered in latter being 45 grains. *Putnam*, v. D-16.

In grave case $\frac{1}{2}$ grain injected in the thigh, repeated a moment later. In less than fifteen minutes patient had entirely returned to consciousness, and was talking normally. *Downs*, v. D-17.

Child, aged 18 months, poisoned by two morphine pills $\frac{1}{4}$ grain each. Potassium permanganate given at once; no other agent, not even an emetic, used. Recovery. *Tingley*, v. D-17.

Cases of poisoning in which permanganate of potassium was successfully used. *R. G. Ehert and G. F. Suker*, v. D-17.

Case in which permanganate of potassium reported as inefficient. *McDonald*, v. D-17.

Case illustrating value of strychnine, $\frac{1}{30}$ to $\frac{1}{12}$ grain; usual doses found ineffectual. *Seiple*, v. D-17.

Case in which $\frac{1}{6}$ grain of apomorphine given hypodermically to cause emesis reduced heart's action, patient dying in fifteen minutes. *George S. Brown*, v. D-17.

Case in baby of 5 months. Recovery after hypodermic injection of $\frac{1}{400}$ grain atropine sulphate and usual measures, including washing of stomach. *Brothers*, v. D-18.

Hypodermic injections of strong black coffee, 20 minims every ten or fifteen minutes, in a child 5 months old. In six hours patient out of danger. *Simmons*, v. D-18.

Two cases treated principally by forced respiration by O'Dwyer's modification of method originated by Fell, of Buffalo,—air forced into tube inserted in larynx by a bellows, thus avoiding tracheotomy. *Voorhees*, v. D-18.

[The successful use of potassium permanganate as an antidote to morphine has been reported by quite a number of physicians, but J. W. Stickler, of Orange, N. J., from experiments on dogs, pigeons, and men, believes cocaine preferable to the permanganate. C. SUMNER WITHERSTINE, Assoc. Ed., v. D-19.]

ORBIT.

ABSCESS AND ORBITAL PERIOSTITIS. Case of endocranial abscess following retrobulbar abscess; recovery. *Stuffer*, iv. B-27.

Case of orbital empyema due to extension of phosphorous necrosis of alveolar process of superior maxilla. *Spalding*, iv. B-25.

Two cases of orbital periostitis in young infants due to hereditary syphilis. *Ripault*, iv. B-25.

Case of empyema of antrum, with orbital periostitis, perforation of orbital vault, abscess of frontal lobe of brain, and atrophy of optic nerve due to carious tooth. *Panas*, iv. B-26.

Case of empyema of antrum and orbital periostitis, due to carious tooth, relieved by incision and drainage. Recurrence. Removal of two-thirds of orbital floor. *Valude*, iv. B-25.

Case of empyema of ethmoidal cells operated through orbit with counter-opening into nose. Operation preferable to intranasal procedure; permits more direct inspection, greatly facilitating removal of granulations, etc.; better drainage by counter-opening. *Gruening*, iv. B-26.

Case of dilatation of ethmoidal sinus; recognized by projection of internal wall of orbit; œdema principally of lower lid and toward malar and temporal regions; optic-nerve lesions later. *Rohmer*, iv. B-25.

EXOPHTHALMOS. Unilateral enophthalmos with exophthalmos upon exertion or pressure upon jugular veins, due to blow upon the eye. *Van Duyse and Bribosia*, iv. B-24.

Intermittent exophthalmos by compression of jugular vein or stooping, due to varicose dilatation of orbital veins. *Riehter*, iv. B-24.

HYDATIDS. Recurrence of hydatid cyst of orbit two years after operation; cyst-wall removed and sac thoroughly curetted. Aspiration to be tried before recourse to excision. *Terson*, iv. B-28.

Case of cysticercus of orbit attached to roof by fibrous pedicle. *Badal*, iv. B-28.

OPHTHALMOPLEGIA. Case of orbital ophthalmoplegia following traumatism of globe. *Vignes*, iv. B-24.

Traumatic ophthalmoplegia due to fracture of superior wall of orbit involving optic foramen, producing hæmorrhage sufficient to compress nerves supplying muscles. *Vossius*, iv. B-24.

TENONITIS. Primary tenonitis. Characteristic symptoms, swellings of lids and conjunctivitis. Principal point in treatment, free incision, even complete peritomy, through the capsule, to prevent injury of nerve by pressure. *Mazza*, iv. B-24.

Case of suppurative tenonitis caused by pneumococcus following corneal ulcer. *Gasparrini*, iv. B-26.

TUMORS. Case of forward and outward displacement of globe due to hard

tumor on inner orbital wall. *Martin*, iv. B-29.

Cystic orbital angiomata best treated by electrolysis. *Valude*, iv. B-28.

Case of small tumor of normal osseous tissue between conjunctiva and sclera. History of previous fall; all so-called subconjunctival osteomata are fragments of fractured bone. *Galtier*, iv. B-28.

Two cases of osteomata of frontal sinus and one case of hyperostosis of orbital walls, with coincident periostcal chondroma and myositis of external rectus. In one case cysts of mucous membrane. *Mitvalsky*, iv. B-28.

Case of fibrosarcoma of orbit springing from bulbar portion of capsule of Tenon. *Kalt*, iv. B-29.

Case of orbital alveolar sarcoma removed without injury to eye. *Benson and Graves*, iv. B-29.

Case of complete removal of eyelids and orbital contents for sarcoma; artificial eye around which eyelids may be modeled. *Lloyd-Owen*, iv. B-29.

ORCHITIS. See TESTICLES, DISEASES OF.

OSTEITIS. See BONES, DISEASES OF.

OSTEITIS, SYPHILITIC. See SYPHILIS.

OSTEOMALACIA.

PATHOGENESIS. Study of fifty cases mollities ossium associated with fertility; average fecundity 4.9 and 1.75 at the onset of the disease; osteomalacia very common in certain places; since 1881 forty-five cases observed in Heidelberg. *Latzko*, ii. G-1, 2.

Case showing early and intense involvement of the femurs, early fracture of the left one, and absence of the typical osteomalacic pelvis. Large number of osteoclasts found. Careful examination made it certain that these bodies were in reality disposing of tissues of little value and probably predisposed to destruction. *Dock*, iii. H-10.

Excess of eosinophile cells observed in the blood of a few cases of osteomalacia. *Neusser*, iii. H-11.

Lymphocytes increased both absolutely and relatively, while the poly- and mononuclear cells diminished. Besides forms described by Neusser, in which there is an increase of marrow-elements in the blood, there is another form of osteomalacia with an increase of lymphocytes. Blood examined post-mortem showed 38 per cent. of lymphocytes, 52 per cent. of polynuclear cells, 9 per cent. of mononuclear and transition cells, and less than 1 per cent. of eosinophile cells. *Tschistowitsch*, iii. H-11.

Bones in a fatal case of osteomalacia do not yield chondrin by prolonged contact with boiling water. Proportion of fatty matters from disassimilation greatly increased. *Dorléans*, iii. H-11.

Case showing that the excretion of calcium by the kidneys in the progressive stage of mollities is much the same as in health. During second stage, that of osseous regeneration, less calcium escapes through the kidneys, but rather more in the fæces. Relation of calcium to magnesium altered, latter diminishing in amount. Loss of phosphoric acid during progressive stage marked; retained during recovery. *Neumann*, iii. H-11.

CLINICAL HISTORY AND DIAGNOSIS. Osteomalacia frequently not diagnosed. Is mistaken for some form of rheumatism more frequently than for all other diseases together. A careful anamnesis and complete examination would, in most cases, prevent error. Phosphorus and castration the chief remedies. *Dock*, iii. H-11, 12.

Contraction of the adductors of the thigh described as pathognomonic of osteomalacia. Diminution of the angle formed by the neck of the femur with the shaft has but little effect in producing limitation of abduction; where, owing to the deformity of the pelvis, the acetabulum approaches the horizontal, abduction is but slightly impeded. *Latzko*, iii. H-12.

Case of osteomalacia in a young man of 18, gradually developing throughout the entire bony system. *Immermann*, iii. H-12.

Case of a woman aged 18, after first pregnancy. *Drake-Brockman*, iii. H-13.

Case in a non-pregnant single woman. Virginity ascertained by examination. *Heerswyngels*, iii. H-13.

Case in a girl 15 years old; rapid course; symmetrical deformities of fingers; muscular atrophy; post-mortem lesions of osteomalacia. *Péron and Meslay*, iii. H-13.

TREATMENT. In removing ovaries for osteomalacia we are groping in the dark. If operation followed by improvement it is accidental. *Kleinwächter*, iii. H-13.

Castration as a treatment of osteomalacia indicated only when either every therapeutic method has been exhausted or when the disease has so far advanced that life is threatened. *Labusquière*, iii. H-13, 14.

In 52 cases of castration carefully studied, 36 completely cured, 4 nearly cured, 3 cured after recurrence, 3 benefited, 4 showed persistent recurrence, and 1 was entirely unsuccessful. No recurrences in cases in which both uterus and ovaries were removed. *Truzzi*, iii. H-14.

Fourteen cases treated by castration and 6 by Porro's method. In former 12 cures which persisted for from two to seven years; 2 partially successful. In Porro's 1 died of septicæmia, 4 perfectly well, and fifth presents slight recurrence. *Fehling*, iii. H-14.

Medical treatment sometimes cures. When

OSTEOMALACIA (continued).
disease well advanced and has resisted all all other treatment, bilateral castration. At term Porro's operation should be chosen. *Labusquière*, iii. H-14.

Three cases cured by castration; in one case it was combined with Cæsarian section. *Poppe*, iii. H-14.

Temporary improvement in seven cases from syrup of iron and codliver-oil. *Polgar*, iii. H-14, 15.

Castration warranted without previous medical treatment when there is progressive puerperal osteomalacia. In Cæsarian section on account of osteomalacia, necessary to remove ovaries whether uterus be removed or not. *J. Weil*, iii. H-15.

[Arguments and case reports of Petrone and Latzko seem to show that in some cases the disease is cured by the action of the anæsthetic (perhaps in connection with some micro-organism) rather than by the particular operation employed. Conner and Freeman, Assoc. Eds., iii. H-15.]

OSTEOMYELITIS.

PATHOLOGY. Staphylococcus pyogenes aureus not the sole infecting organism,—staphylococcus pyogenes albus and streptococcus pyogenes the most frequent of other organisms found. *Lannelongue*, iii. H-1.

Almost invariably secondary and often associated with a number of other suppurative lesions in widely separated parts of the body; hence part of a purely bacterial form of pyæmia which shows a great disposition during youth to the formation of metastases in the bones. *Jordan*, iii. H-2.

[It is questionable whether it is strictly correct to speak of osteomyelitis as "pyæmia." The essential features of a pyæmia are infected thrombi and emboli, while the facts seem to be insufficient to prove that these exist in osteomyelitis, especially in cases of intestinal origin. Conner and Freeman, Assoc. Eds., iii. H-2.]

Bacteriological examination in 26 cases. Staphylococcus aureus, 11 times; staphylococcus albus, 4 times; streptococcus, 4 times; diplococcus, once; and combination of bacteria, 6 times. Presence of streptococcus seems to indicate severe nature of case. *Canon*, iii. H-3.

Intra-venous injection of coli bacillus into young rabbits will give rise to inflammations of the bones, very similar to those produced by microbes of suppuration, in juxta-epiphyseal region and epiphysis, especially lower end of femur. *Akermann*, iii. H-3.

Study of 700 cases; proportion of disease in other countries 2 to 3 per cent., in Bohemia 8 per cent. Staphylococcus found, as a rule. *Funke*, iii. H-3.

[Reports of cases in medical literature governed, to a marked extent, by fashion in different places and at different times. One is scarcely justified in assuming, without further proof, that because more cases of osteomyelitis have been reported in Bohemia than in other countries the disease is more prevalent in that region. Conner and Freeman, Assoc. Eds., iii. H-3.]

Bacillus of Eberth obtained in pure culture from two instances of suppurative periostitis following typhoid fever. *Ebermaier, Orloff and Achalme*, iii. H-3.

There is no animal tissue in which the bacillus typhosus may not cause suppuration under suitable conditions. Typhoid fever when in possession of a certain degree of virulence possesses distinct pyogenic properties. *Dmochowski and Janowski*, iii. H-4.

[In spite of the probability that the typhoid bacillus forms pus under certain conditions, these conditions are not often present. It is certainly the rule, in regard to bones and joints, that suppuration quite rarely occurs. Conner and Freeman, Assoc. Eds., iii. H-4.]

In six cases observed, character of typhoid attack did not bear any relation to the occurrence of bone-changes. Symptoms of the bone-infection almost without exception come on some time after convalescence has been well established. *Parsons*, iii. H-4, 5.

[Recently attention is being called quite strongly to the bone- and joint- lesions of typhoid. The question, however, is not a new one. Conner and Freeman, Assoc. Eds., iii. H-5.]

OSTEOMYELITIS OF INFANCY. Disease most frequent in infants under 1 year (21 out of 162 cases). Frequently overlooked at this period of life, as patients afford but little indication and may die before swelling appears. Trephining indicated, but not too extensively. Bony tissue readily regenerates at this period of life. *Braquehaye*, iii. H-5, 6.

[A point of great importance is that insisted upon so strongly by Owen,—early incision before the formation of pus, with trephining if necessary, and removal of the infected medulla. Conner and Freeman, Assoc. Eds., iii. H-6.]

A remarkable case of compensatory hypertrophy of bone. *Marchant*, iii. H-6.

Case of acute osteomyelitis of the sacrum; child suddenly affected with chills and pain in the right thigh. Anterior surface of sacrum broke through and a pint of pus evacuated. *Tixier*, iii. H-6.

CLINICAL HISTORY AND DIAGNOSIS. The more common the tubercular form. Acute miliary tuberculosis of bone, which corresponds in most essentials with similar invasions of the lungs, occasional examples. Not quite so rapid as pyogenic forms, but sufficiently acute to demand prompt recognition. *Roswell Park*, iii. H-7.

[When miliary tuberculosis of a bone exists, it is more than likely that other portions of the body have suffered also, and that an operation would be of little real benefit. CONNER AND FREEMAN, Assoc. Eds., iii. H-7.]

All cases of albuminous periostitis are not of osteomyelitic origin, but may be due to tuberculous abscess or gummatous processes. On the other hand, accumulation of sero-mucous fluid is not uncommon in granulating wounds. *Grimm*, iii. H-8.

Case of tubercular osteomyelitis following the extraction of a molar tooth. All the inflammatory metastatic foci of the bones were located at the epiphyseal extremities. *Riesmeyer*, iii. H-8.

Clavicle is frequently the site of osteomyelitis, with a special clinical aspect, according as the disease affects the internal or external extremity of the bone. After recovery peculiar complications may appear, —compression of the subclavian and brachial plexus by hyperostosis, etc. *Braquehaye*, iii. H-8.

Case of acute osteomyelitis of the sternum. *Gaudier*, iii. H-9.

Vertebral osteomyclitis usually involves the bodies of the vertebræ, tendency of the pus being to burrow inwardly, either toward the vertebral canal or pleura, mediastinum, or peritoneum. Of eight cases only three recovered. *Hahn*, iii. H-9.

Fatal case of acute osteomyelitis with purulent pericarditis. *Lafarelle*, iii. H-9.

Case of prolonged osteomyelitis dating from the age of 3 years in a man of 28 years. *Picou*, iii. H-9.

Case of osteomyelitis of the fifth rib successfully treated by subperiosteal resection. *Braquehaye*, iii. H-9.

TREATMENT. Early drainage of bone by drilling or trephining to save necrosis. Early subperiosteal resection to prevent pyæmia; exhaustion by discharge. Osteoplastic operations for spicular necrosis or to close old cavities. Gelatin-grafts as a scaffolding for organizing blood-clot in aseptic bone-cavities. Epiphyseal bone-grafts to fill gaps in the continuity of a long bone. *Neve*, iii. H-9.

Case of osteomyelitis of the ankle-joint in which bone-chip implantation proved of value. Curettement. Cavity disinfected with mercuric-chloride solution and hydrogen peroxide, dusted with iodoform, and packed with decalcified-bone chips. *Senn*, iii. H-9.

Case of bipolar osteomyelitis of the tibia cured by radical emptying of the cavity with the sharp curette. *Curtillet*, iii. H-10.

Successful osteoplastic operation for total defect of the shaft of the tibia due to acute osteomyelitis. *Gerster*, iii. H-10.

OTITIS.

See EAR, DISEASES OF.

OTORRHŒA.

See EAR, DISEASES OF.

OVARIES, DISEASES OF.

ABSCESS. Pneumococcus found in pus of an ovarian abscess. *Von Rosthorn*, ii. F-69.

Specimen to show left tubo-ovarian abscess with right pyosalpinx. *Heywood Smith*, ii. F-69.

In four specimens abscess-wall lined with cells bearing all characters of membrana granulosa in degenerative stage when the corpus luteum is developed. This kind of abscess is caused by direct suppuration of a corpus luteum. Abscess of ovary would seem to be a primary disease associated with menstruation or pregnancy. *Langer*, ii. F-69, 70.

CYSTS.

SIMPLE CYSTS. Cysts of corpus luteum possess considerable clinical as well as pathological interest. Large, apparently unilocular, ovarian cysts may undoubtedly arise from confluence of adjacent dilated follicles. *Fränkel*, ii. F-70.

Bacteriological examination of all contents of abdominal cysts at time of operation urged. Should contents escape into peritoneal cavity, operator can at once decide whether necessary to drain for sepsis. Out of forty-six laparotomies, in only one necessary to drain. *C. B. Penrose*, ii. F-70.

Case of unusual growth and showing profuse menorrhagia. Bleeding ceased immediately after operation. *J. Bland Sutton*, ii. F-70, 71.

Two cases of metrorrhagia after menopause. *Delaunay*, ii. F-71.

Child of 6 years with cyst of ovary. *Rein*, ii. F-71.

Case in which fluid was not effused from peritoneum, but due to leakage from ruptured loculi in tumor. This fluid is not absorbed and excreted by kidneys, but forms peculiar gelatinous coating on peritoneal surface. *J. Bland Sutton*, ii. F-71.

Rate of growth of ovarian tumors. A cyst may arise in healthy ovary and attain a dangerous size within seventeen months. Complex glandular tumor containing at least four quarts of colloid stuff may grow within forty months. A dermoid may attain dangerous proportions within three years. *J. Bland Sutton*, ii. F-74.

Cases of insanity cured by removal of fibroid tumor. *Emory Lanphear*, ii. F-74.

Ovarian cyst removed from insane woman. Mental condition temporarily improved. *Boulengier*, ii. F-74, 75.

Case of ablation of ovaries and tubes for hystero-epilepsy, with entire relief. *J. V. Meigs*, ii. F-75.

Removal of ovaries in case of hysteria; no beneficial result. *Pamard*, ii. F-75.

OVARIES, DISEASES OF (continued).

DERMOID CYSTS. Three signs in same patient almost assuredly indicate dermoid cyst. Pain, slow growth, consequent small bulk of tumor, and relative youth of patient. *Guinard and Tillaux*, ii. F-71.

Case of bilateral dermoid ovarian cysts in an unmarried girl of 20 years. The larger tumor was lined by skin ; contained sebaceous matter, hair, and bone representing superior maxilla and carrying four teeth. *Reverdin*, ii. F-71.

Case of dermoid cyst and endothelioma combined ; rare variety. *Lanelongue and Faguet*, ii. F-71.

Two dermoid tumors removed from one patient,—one attached only to omentum, other in opposite ovary. *Abbe*, ii. F-71.

Tumor containing bones, sebum, hair, and showing attempt to form side of human face ; palpebræ with hairs, nostril, and upper lip. *S. C. Graves*, ii. F-71, 72.

[The writer removed an ovarian cyst from a girl, aged 11 years, which involved both ovaries. It contained hair, teeth, sebum, and bone. One piece was a well-developed half of the upper jaw, containing a row of teeth. E. E. Montgomery, Assoc. Ed., ii. F-72.]

ECHINOCOCCIC CYSTS. Seven cases collected from literature Schatz believes are not reliable. Case in which he attempts to prove autochthonous development of echinococcus in ovary. *W. A. Freund and Schatz*, ii. F-72.

PAPILLOCYSTOMA. Papillary masses on inner surface originated in cells of Graafian follicles, cysts forming first, papillary masses developing secondarily. *T. S. Cullen*, ii. F-72.

TREATMENT OF OVARIAN CYSTS. Resection of ovary is indicated when cysts become too large or too numerous to be treated by ignipuncture; also if the woman is near her menopause or if malignant disease or the slightest suspicion of it is present. *Matthaei*, ii. F-77.

Not in favor of ignipuncture of ovarian follicles; puncture of cysts when small preferred. When cysts large, resection and cauterization are insufficient. *Martin*, ii. F-77.

Opening of cysts with Paquelin cautery prevents loss of blood and does not favor adhesions, while opening with bistoury causes hæmorrhage and necessitates suture with adhesions later on. Cauterized ovaries diminish in size. *Dührssen*, ii. F-77.

Ovaries to be left, whenever possible, in young women. Ignipuncture and incision of follicles of no value. *Veit*, ii. F-77.

Sequelæ in 136 out of 268 patients operated upon by Lucas-Championnière, both appendages being removed for inflammatory diseases of the tubes and ovaries. Pain persisted in only 8 per cent.; pyosalpinx cases gave best results, pains always ceasing. Catamenia persisted in 22 per cent. *Pinesse*, ii. F-77, 78.

One hundred and twenty-eight cœliotomies for ovarian tumors, with eleven deaths. *Mundé*, ii. F-78.

Fifty per cent. of cases complain more or less of painful symptoms after operation. Patients, as a rule, sent home too early; allowed out of bed too soon; lost sight of too soon after the operation. Subsequent attention to general health necessary. *Mumford*, ii. F-78.

No mutilation when any chance of relieving inflammatory condition by colpotomy and drainage. If partial disease of ovary and tube present, attempt should be made to preserve healthy portions. If removal necessary, less subsequent nervous phenomena occur if hysterectomy performed in addition. Castration for neuroses should only be resorted to as a last resource. *Montgomery*, ii. F-78.

COMPLICATIONS AND SEQUELÆ. In vast majority of cases sexual feeling not impaired; removal of uterus shows no more evil effects than removal of appendages alone. *Cushing*, ii. F-78, 79.

Case in which removal of ovaries was followed by marked increase of sexual appetite. *A. Lapthorn Smith*, ii. F-79.

Part played by favorable mental condition occurring as a result of operation should not be overlooked. *Putnam*, ii. F-79.

Seven deaths occurring in first few days after cœliotomy in which post-mortem did not show the least sign of peritonitis, but acute fatty degeneration of liver due to septic infection. *Thiercelin and Jaile*, ii. F-79.

Case of general peritonitis caused by twisted pedicle of ovarian dermoid. *T. F. Cowles*, ii. F-79.

Hernia after ovariotomy frequently due to failure of union of aponeurotic layer. Best to always unite edges of this layer separately with continuous catgut suture after closing peritoneal incision. Skin and subcutaneous tissue united with interrupted silk sutures; skin wound is closed accurately by running catgut suture. *Winter*, ii. F-79.

Cases in which ureter severed not uncommon. Often not recognized at time of operation; urine suppression or marked diminution an indication. Careful measurements of amount of urine passed during first forty-eight and seventy-two hours advisable. *Penrose*, ii. F-79, 80.

Fatal case of suppurating bilateral parotitis ten days after removal of uterus, tubes, and ovaries. *Ross*, ii. F-80.

Similar case; tedious convalescence; recovery. *Ricketts*, ii. F-80.

Case in which parotitis set in after double

ovariotomy; marked mental symptoms; air-cushion previously used by a case of facial erysipelas as cause of contamination; both parotids attacked; death. *Everke*, ii. F-80.

Case of intestinal obstruction after ovariotomy. Loop of ileum adherent to scar, also a loop of sigmoid. Appendices epiploïcæ adherent to ileum, forming a band under which another loop of ileum was strangulated. *Bidwell*, ii. F-80.

Case in which obstruction probably due to kink in the sigmoid flexure doubled forward. *Battle*, ii. F-80.

Four cases of intestinal obstruction after ovariotomy. Purgative day after operation to prevent it advisable. *Legueu*, ii. F-80.

Case of intestinal fistula following cœliotomy in track of drainage-tube, ligature of broad ligament infected through drainage-tube. *L. Frank*, ii. F-80.

Ovarian cyst weighing over eighty pounds, from girl under 17 years. *Cullingworth*, ii. F-80.

Ovarian tumor from patient aged 9 years. *W. Forbes*, ii. F-80.

List of ten successful ovariotomies in patients over age of 80. *Remfrew*, ii. F-80, 81.

Successful ovariotomy on a patient in her eighty-seventh year. *E. Matthews Owens*, ii. F-81.

Case in which vermiform appendix found adherent to cyst, carefully detached. Recovery without shock. *J. Bland Sutton*, ii. F-81.

Case of intra-ligamentous suppurating ovarian cyst, in which a part of the cyst-wall was firmly attached to the uterus and had penetrated the muscular layer at the fundus. *Leith Napier*, ii. F-81.

DRAINAGE AFTER CŒLIOTOMY. Results in complicated cœliotomy only rarely improved by the use of drainage; in greater number of cases where it is used it is not essential. *Czempin*, ii. F-81, 82.

Necessary in cases of purulent ovaritis, salpingitis, a pelvic abscess in any situation, —*i.e.*, wherever there are germs. *Boisleux*, ii. F-82.

Decision during operation whether drainage indicated or not should depend upon microscopical discovery of pus in the adnexa. If bacteria present, drainage; if bacteria absent, wound to be closed without using tubes. *Schauta*, ii. F-82.

Length of time during which drainage should be pursued in sterile salpingitis thirty-six to forty-eight hours; in salpingitis containing any form of pyogenic microbe, much longer. *Morax and Hartmann*, ii. F-82.

Vaginal drainage favored by law of gravitation; should be practiced through Douglas's pouch in pelvic suppuration, extensive adhesions, and partial hysterectomy, and as index when hæmorrhage feared. *Moulonguet*, ii. F-82.

Fatal intestinal paralysis and obstruction after laparotomy often due to mechanical and other kinds of irritation, which should be avoided. Sponging of intestinal loops and peritoneum and rough handling are the main sources of danger. Negative bacteriological examination of peritoneum and contents after death in such cases shown. *Engström*, ii. F-82, 83.

In seventy or eighty personal cases hæmatoma in broad ligament some hours or days after operation. *Tait*, ii. F-83.

Due to retraction or slipping of artery from embrace of the ligature, while remaining mass of tissue which forms pedicle still retained. *Penrose*, ii. F-83.

UNUSUAL TUMORS OF OVARY AND BROAD LIGAMENT.

DIAGNOSIS. When considerable quantity of free fluid present in the abdomen, flanks resonant on percussion. Ovarian tumor complicated in this way is usually malignant. A distended bladder and a pregnant uterus should first be positively excluded. *Morison*, ii. F-73.

ANGIOMA OF THE OVARY. Case of angio-sarcoma of the ovary. Undoubtedly perithelial in origin, growing from outer coats of blood-vessels. *Thomas S. Cullen*, ii. F-74.

Case of angioma cavernosum of ovary. *Marekwald*, ii. F-74.

CANCER. Case showing a form of carcinoma differing from any before described, passing through a stage which must be looked on as adenoma of Graafian follicles. *C. von Kahldon*, ii. F-73, 74.

Specimen of phleboliths simulating ovarian carcinoma. *F. Holme Wiggin*, ii. F-74.

FIBROMA OF THE OVARY. In medical literature of last twelve years 36 cases found, 2 personal cases. *Graefe*, ii. F-72.

Case of pure fibroid of ovary. *Rendu*, ii. F-72.

Case of fibroma; fibroid of the ovary, size of an adult head, attached to uterus by a fold of peritoneum. *Schoenheimer*, ii. F-73.

Fibromyoma, size of a fist, adherent in one part to cyst of left ovary and in other to appendages on right side. *Terrier and Raymond*, ii. F-73.

Case of hæmatocystic fibroma of ovary weighing fifteen pounds. *Toison*, ii. F-73.

FIBROMA OF THE BROAD LIGAMENT. Three varieties: (*a*) pedunculated, treated by ligature of pedicle and excision; (*b*) those of medium size, treated by enucleation; (*c*) large growths, treated by total abdominal hysterectomy. Illustrative case complicated with partially irreducible umbilical hernia. *Vautrin*, ii. F-68.

Removal of fibroma extending from

OVARIES, DISEASES OF (continued). xyphoid appendix to Douglas's *cul-de-sac*. Operation easy; single adhesion behind coil of intestine. Uterus, being adherent, was cut off above cervix. *Funck-Brentano and Robineau*, ii. F-68, 69.

Myoma of broad ligament, independent of womb, one of rarest of pelvic tumors. *Barton Cooke Hirst*, ii. F-69.

GROWTHS OF THE ROUND LIGAMENT. Case of fibrolipoma of left round ligament. Diagnosis of inguinal hernia made; ligated off; uneventful recovery. *Witte*, ii. F-69.

PANCREAS, DISEASES OF.

APOPLEXY OF PANCREAS. Etiology obscure. Two of three cases reported addicted to alcohol. Mechanism of death a reflex action on the heart. *Sarfert*, iii. C-20.

CYSTS. Evidence showing that ruptures of pancreas need not prove fatal. Probable that lesion was followed by inflammation, cicatricial contraction, and recovery. Traumatic origin of cyst assigned to a large proportion of reported cases. *Leith*, iii. C-21.

Many so-called pancreatic cysts, both traumatic and spontaneous, have no real right to their name, having probably no connection with pancreas. *Rouiller*, iii. C-22.

Bell, in a case, scraped cautiously through gastro-hepatic omentum and found a cyst with thickish wall; scraped cautiously through that and evacuated about a pint of foul pus. *Joseph Bell*, iii. C-22.

Case of rapid development after injury. Rapid refilling after puncturing, laceration of Wirsung's duct, cicatrization, cutting off great part of duct. *Kurtz*, iii. C-22.

Fluid removed from a case turbid, alkaline, and albuminous, and contained amorphous mass, size of a walnut, resembling putty. Inoculation negative. *Tobin*, iii. C-22.

Blood-cyst giving exit to about two quarts of sanguinolent fluid. *Filippi*, iii. C-23.

Case successfully treated by operation. *Ott and Estes*, iii. C-23.

TREATMENT. Case successfully treated by drainage. Fluid withdrawn by aspiration. Parts about exposed portion walled off with gauze, free opening made, and two quarts of fluid removed. *M. H. Richardson*, iii. C-23.

Case in which there was long history of epigastric pain and sudden appearance of cyst. Contents sanguineous. Surgical treatment; perfect recovery. *Fisher*, i. C-84.

Often due to effusion of blood arising in gland or neighborhood. *Fisher*, *Leith*, i. C-84.

Case suggesting that hæmorrhage may be due to indirect result of alterations in acini. *Tilger*, i. C-84.

Probably lesion of sympathetic system. *Fisher*, i. C-84.

FAT-NECROSIS. Due to action of certain fat-ferments in pancreatic juice. *Hildebrand*, i. C-79, 80.

In two autopsies well-marked disseminated fat-necrosis, but limited pancreatic change. *Stockton Williams*, i. C-80.

Multiple fat-necrosis associated with pancreatic disease is the result of such disease. *Fitz*, i. C-80, 81.

Areas of fat-necrosis removed by operation consisted of a combination of lime with fatty acids. *Thayer*, iii. C-20.

PANCREATITIS.

DIAGNOSIS. Appearance of tumor in the epigastrium felt between stomach and colon, extending to the left. Sometimes most prominent in left lumbar region. *Körte*, iii. C-19.

Case suddenly taken with vomiting; a few minutes later pain in left side, continuing since. Dome-shaped prominence in epigastrium, extending along border of ribs on left side to point just above superior spine of ilium. At autopsy, pancreas seat of disseminated fat-necrosis and almost completely destroyed. *Elliot*, iii. C-20.

Acute case in which prominent symptoms were: Sudden, short, colicky pain; constipation, with vomiting; slight abdominal distension; pulse and temperature somewhat increased; highly-albuminous urine, with casts; sudden collapse. *Paul*, i. C-81.

In same class of cases necropsy showed, microscopically, hæmorrhagic infiltration and numerous leucocytes between acini; latter so degenerated as to consist of granular and almost homogeneous detritus. *Kraft*, i. C-81.

Acute pancreatitis due to disturbance in normal secretion of the organ. *Jung*, i. C-81.

Case simulating hepatic colic as first evidence. Presence of blood-cells and coloring matter in abscess-cavity pointing to hæmorrhagic condition. *I. E. Atkinson*, i. C-81.

Case of subdiaphragmatic abscess due to pancreatic abscess. *Musser*, i. C-82.

SYPHILIS. Case of sclero-gummatous disease of pancreas. Unique. Pancreatic head hard with central gumma. *Schlagenhaufer*, i. C-84.

TUMORS.

CANCER. Carcinoma rare; 6 per cent. of all carcinomata. Growths situated in small end most favorable for operation. Case of sarcoma. *Krönlein*, iii. C-23.

Cyst of head which autopsy showed to be part of an adenocarcinoma of the tail of the pancreas. *Foote*, iii. C-23.

Deeply-seated pain in epigastric or hepatic region; progressive emaciation without clear signs of gastric cancer; jaundice and dilatation of gall-bladder without history of

biliary colic. Most probably primary cancer of pancreas. If gall-bladder undilated, diagnosis uncertain. Based on nineteen cases. *Herringham*, i. C-82.

Two cases showing that even in advanced destruction no fat may be found in fæces. Motions not always colorless. *Guthrie Rankin*, i. C-82.

Steatorrhœa not a reliable sign; frequent diarrhœa early in affection. Icterus a relatively valuable sign in cases where common diet not compressed. *Huchard*, i. E-82.

Voracious appetite, though total perversion of relish for food; emaciation and overwhelming weakness led to correct diagnosis in two cases. Proved by autopsy. *Maxson*, i. C-82.

Two cases in which hepatic symptoms were prominent. Hypertrophy at first, then atrophy. *Cochez*, i. C-82, 83.

Case in which hypertrophy, causing obstructive jaundice, found post-mortem to be due to cancer of head of pancreas. *King*, i. C-83.

Icterus simulating intestinal affection due to cancer of pylorus and head of pancreas. *Floersheim*, i. C-83.

Case of primary cancer of head of pancreas with generalization in the liver. *De Massary*, i. C-83.

SARCOMA. Primary sarcoma of head of pancreas with hour-glass contraction of stomach, simulating pyloric stenosis. *D. J. M. Miller*, i. C-83.

PARALYSIS.

ACUTE ASCENDING. Landry's paralysis must be considered as an acute intoxication paralysis. In majority of cases initial point of lesion in the peripheral nervous system. Greater number of cases to be included in the category of acute polyneuritis. *Zusch*, ii. B-18.

Almost identical conclusions. Case occurring after variola, which ended fatally after a few days. Peripheral nerves appeared normal. Alterations in nerve-cells of spinal cord striking; body of the cells swollen, cloudy, and vacuoles present. Prolongations often torn or broken off. Around nerve-cells, streptococci. *Oettinger and Marinesco*, ii. B-19.

Case in which, possibly, a certain etiological relation with an unusually severe epidemic of malaria could be established. *Vranjican*, ii. B-19.

BULBAR PARALYSES. Case of woman of healthy parentage in whom there existed amyotrophic lateral sclerosis with involvement of and paralysis in the upper seventh nerve distribution. This disagrees with opinion that upper facial innervation is never affected in progressive amyotrophic bulbar paralysis. *Remak*, ii. A-25.

Instance of subacute bulbar paralysis of the descending type. Complete external ophthalmoplegia; complete paralysis of lower limbs; incomplete paralysis of arms, trunk, and face in a boy who died within three months. *J. B. Charcot and G. Marinesco*, ii. A-25.

Two uncomplicated cases showing (1) the suddenness of the attack; (2) paralysis of the limbs; (3) that hæmorrhage is the most common cause of acute bulbar paralysis; (4) that the lesion is more frequent in the lower half of the medulla; (5) that the vagus and spinal accessory nuclei are necessarily implicated. *J. P. Tildesley*, ii. A-25, 26.

Microgyria and the infantile form of central bulbar paralysis. A case in which, at autopsy, the most striking appearances were observed in the brain. In the spinal cord there was also atrophy of the lateral columns. *Oppenheim*, ii. A-26.

ASTHENIC BULBAR PARALYSIS. A woman, 27 years old, manifested first symptoms when about six months pregnant with her second child. There developed a ptosis, first on one side and then on the other, associated with diplopia; then weakness of muscles of mastication; defect in articulation and vocalization; unwieldiness and sluggishness of the tongue; attacks of distressing tachycardia and paroxysmal dyspnœa, and weakness and feeling of exhaustion in the trunk and extremities. *Collins*, ii. A-26, 27.

A contribution to this subject. Symptom-picture is much as described by Collins. Relapses common even a year or two after apparent recovery. Menstruation temporarily aggravates the symptoms. Prognosis always doubtful. *Strümpell*, ii. A-27.

PSEUDOBULBAR PARALYSIS. Case illustrating the fact, pointed out especially by Barlow and Hughlings-Jackson and James Taylor, that a lesion on each side of the cerebrum gives rise to symptoms which so closely resemble those of bulbar paralysis as to be clinically almost indistinguishable from these. *Sacaze*, ii. A-27.

Typical case. At necropsy two patches of softening found,—one on the right side extending above lenticular nucleus and below, lying on its inner and posterior part, extending into middle of posterior limb of internal capsule; the other on the left side, occupying middle of posterior limb of internal capsule, and below extending into the posterior part of lenticular nucleus. Cerebral arteries distinctly atheromatous. *Newton Pitt*, ii. A-28.

FACIAL PARALYSIS. In the child the aspect of the face is much less characteristic than in the adult, and the affection may pass unnoticed. *Bezy*, ii. C-33.

Case showing all symptoms of paralysis of peripheral origin,—patient unable to volun-

PARALYSIS (continued).

tarily lower lids, though these followed the motion of the eye on looking downward. When cold water is thrown on paralyzed parts, the reflex is absent in paralysis of peripheral origin, whereas it is present in paralysis of central origin. *Marie*, ii. C-33.

Frequency of recurrences in facial paralysis of peripheral origin attributed to constitutional tendency rather than to local predisposition after an attack. *Hatschek*, ii. C-33.

Two cases dating from infancy. *Müller*, ii. C-33.

Case of double facial paralysis following influenza. Recovery in six weeks. *Darkas*, ii. C-33.

Six cases of recurrence among ninety-nine cases of rheumatic facial paralysis. *Hübschmann*, ii. C-34.

Case of symmetrical facial paralysis and paralysis of auditory nerves. *Hutchinson*, ii. C-34.

SPASTIC SPINAL PARALYSIS AND LITTLE'S DISEASE. A brother and sister who presented symptoms of spastic infantile paralysis. Incorrect to refer contractures and augmentation of tendon-reflexes to diseased condition of pyramidal tracts. *Raynaud*, ii. B-19.

Inclined to the opinion that degeneration of the pyramidal tracts is the primary cause of the well-known symptoms of this affection. *Erb*, ii. B-19.

[The question remains, however, as to whether this condition in itself is not due to a defective action of the trophic cells in the brain, and is not, therefore, secondary in nature. H. Obebsteiner, Assoc. Ed., ii. B-19.]

Unable to find any changes in pyramidal tracts in congenital rigidity of the limbs; impaired function of the cerebral cortex inferred. *Ganghofner*, ii. B-20.

Two sisters in whom symptoms of progressive spastic diplegia began to develop in the seventh year. A variety of processes may be in question. *Koschevnikoff*, ii. B-20.

Case of a little girl of 6 years. Knees touch, heels drawn apart, and foot in equinovarus. Thighs flexed upon pelvis and legs upon thighs. *Marfan*, ii. C-35.

Case in which symptoms only presented themselves in the fifteenth year. Not a case of either spastic spinal paralysis or Little's disease, though great similarity to both affections. Principal symptom, hypertension of joints. A regrettable error to suppose that tracts for transmission of motor and will-impulses are located in the pyramids. Pyramidal tracts govern the innervation of the joint-tension. *Benedikt*, ii. B-20.

[He alone supports this opinion. H. Obersteiner, Assoc. Ed., ii. B-20.]

Case in which symptoms noticeable during first months of life; unmistakable only when beginning to walk. Referred to pronounced anæmia in mother. *Verhoogen*, ii. B-20.

Two children in whom symptoms referable to hereditary syphilis. *Fournier and Gilles de la Tourette*, ii. B-20.

Case likewise unmistakably due to hereditary syphilis. *Breton*, ii. B-20.

[It would naturally be erroneous to accept this as the cause of all cases of this malady; but it is advisable, particularly in view of the eventual therapeutic result, to institute inquiries as to whether there may not be hereditary syphilis. H. Obersteiner, Assoc. Ed., ii. B-20.]

Two cases of spastic spinal paralysis in adults. Initial symptoms after overexertion and taking cold in one, and after confinement in the other. *Hofmeister*, ii. B-20.

[We are not yet in a position to form a very clear picture of this affection; a suitable series of post-mortem results are still missing. H. Obersteiner, Assoc. Ed., ii. B-21.]

INFANTILE. Various forms of paralysis occurring in children under influence of two segments of nervous system. Spasmodic symptoms with absence of atrophy indication of lesion of superior segment. Atrophy with loss of knee-jerk and other spasmodic symptoms indication of lesion of inferior segment. *J. P. Crozer Griffith*, ii. C-29.

Pathology of diplegic paralysis may vary greatly. Congenital form is connected with meningeal hæmorrhage and consecutive atrophy of central convolutions. *V. Muratoff*, ii. A-20, 21.

Cerebral diplegia may, in some cases, be due to a bilateral meningeal hæmorrhage occurring at birth when delivery is protracted. *Koenig*, ii. A-21.

Two cases, mother and daughter, suffering from spasmodic cerebral diplegia Both unable to utter a sound owing to spasmodic contraction of lips and jaws. *Oppenheim*, ii. A-21, 22.

Six cases of cerebral palsy in childhood; began with convulsions, immediately followed by hemiplegia. *Th. Diller*, ii. A-22.

Certain trophic changes associated with infantile spasmodic hemiplegia only to be noted at puberty. Difference in size of testicles noted in 8 out of 21 boys. In girls, only abnormality noticed at puberty in 1 case mamma on paralyzed side hypertrophied. *Leblais*, ii. A-22.

Patient who, at age of 2 years, had hemiparesis with slight arrest in development of limbs of left side. At 56 years another attack, the hemiplegia being complete and accompanied by progressive contractures. *Lannois and Pauly*, ii. A-22.

Eight cases of painful paralysis in young infants, in which, following slight trau-

matism, there resulted transient uselessness of limb. Recovery in from one to seven days. *Brunon*, ii. A-23.

Transitory hemianopsia and concentric limitation of field of vision in a case of infantile cerebral paralysis. *Koenig*, ii. A-23.

Case of infantile eclampsia with right hemiplegia, followed by left hemiplegia and rapid recovery. *Woodbury*, ii. A-23.

GENERAL TREATMENT OF PARALYSES. In paralysis of amyotrophic and peripheral origin, electrifying limbs previously rendered bloodless with Esmarch's bandage. Congestion following removal of bandage favors nutrition of muscle. *Sighicelli*, ii. C-31.

In funicular paralysis of facial nerve galvanization better than faradization, former having advantage of acting more directly upon nutrition of nerve and muscles. *Doumer*, ii. C-31, 32.

Extension or counter-extension little or no effect. Laminectomy immediately effective when paralysis due to caries. *Parkin*, iii. A-58, 59.

Cases in which laminectomy gave satisfactory results. *Noble Smith*, *Vincent*, *Horsley*, iii. A-59.

Results from laminectomy only obtained where there was a tuberculous process during operation. Success may only be due to accidental drainage of tubercular abscess. *Ménard*, iii. A-59, 60.

Case of traumatic paraplegia in which plaster-of-Paris jacket caused return of independent locomotion. *Gray*, iii. A-60.

Impairment of bowels and bladder-functions makes after-treatment particularly important. *Wyman*, iii. A-60.

TUMORS. Case in which large sarcoma was removed from spinal, and resulting in almost entire recovery and relief from pain. *Kummell*, iii. A-60 to 62.

Case of primary enchondroma of the spine,—the first reported in the cervical region. *Péan*, iii. A-62.

Trephining should be done early. Later thickening of membranes and destruction of tissues render operation futile. *Claye Shaw*, iii. A-46.

Such operations quite justifiable; practically unattended by any mortality if properly performed. Five cases operated by Wallace described, four of which greatly benefited. *J. McPherson*, iii. A-46, 47.

PARALYTIC DEFORMITIES. Surgical measures should, as a rule, precede application of mechanical appliances. Myotomy and tenotomy usually remarkably effective. In contractures at the hip, free open incision; at the knee, subcutaneous section; but, when fascial contractions occur in central popliteal space, open incision necessary and excision occasionally. At foot, subcutaneous division usually sufficient; tarsectomy seldom necessary. Fasciotomy frequently required. Complete and immediate forcible straightening important. *Willard*, iii. G-71.

New operation for deformities following infantile paralysis. Healthy tendon sutured to paralyzed tendon without interfering with its own function. Excellent result. *Milliken*, iii. G-71 to 74.

[Tendon transplantation is a very useful procedure in many cases of paralysis, but is not original with Milliken. Nicoladoni reported cases of tendon transplantation a long while ago, and B. F. Parish, of New York, published some cases in 1892. R. H. Sayre, Assoc. Ed., iii. G-74.]

Number of cases in which gratifying results obtained. Tendon transplantation could be employed to advantage in certain cases. *Goldthwaite*, iii. G-74.

Two cases of disarticulation of knee for functional impotence of lower limb following infantile paralysis. *Blanc*, *Thévenon*, iii. G-74.

Importance of early attention to disability caused by infantile paralysis. *Judson*, iii. G-74.

Dissection of amputated leg showing marked atrophy of muscles, vascular system, and nerves; increase in subcutaneous adipose tissue, latter in muscles rare. *Primrose*, ii. C-34.

Recurrent in a child of 20 months. Second attack less intense than the first; sudden onset with fever. *Buccelli*, ii. C-34.

TREATMENT. To overcome deviations and malformations substitution of action of healthy muscles for that of affected ones. Suture of tendon of paralyzed muscle to end of neighboring healthy one. *Drobnik*, ii. C-34.

Case of infantile paralysis with atrophy localized at magnus serratus muscle. Probably erroneous diagnosis; no atrophy of the bones. Radicular paralysis more likely. *Galliard*, *Marie*, ii. C-35.

PARALYSIS, GENERAL, OF THE INSANE.

ETIOLOGY AND PATHOLOGY. [The numerous observations upon general paresis, both clinical and pathological, show the wide-spread interest in this disease. While nothing new is to be noted in the pathology of the affection. the investigations into its etiology point clearly to its close relations with syphilis. G. H. Rohé, Assoc. Ed., ii. D-18.]

Great increase of general paralysis in England and Scotland; asylum statistics of the United States show an even greater increase. Among seven State asylums to which 1942 patients were admitted in 1890, 66 cases of general paralysis, or a little over 3 per cent. *New York Medical Record*, ii. D-18.

PARALYSIS, GENERAL, OF THE INSANE (continued.)

Statistics unreliable; for past twenty years an almost mechanical uniformity in ratio between paresis and all other forms of insanity. Of a total of 4025 deaths, 1366 cases of paresis, or about 33 per cent. of deaths from all forms of insanity. *Louis C. Pettit*, ii. D-18.

In second stage slight polyuria; urine pale, feebly acid in most cases. Urea below normal; albumin relatively frequent, but never in large amount. Indican often found in notable quantity. *Klippel and Serveaux*, ii. D-19.

Comparative immunity of Irish insane from the disease would confute theory that alcoholism alone is sufficient to cause the disease. *Drapes*, ii. D-19.

Present trend of opinion that paresis is a result of syphilis. Statistics showing syphilis in from 75 to 95 per cent. of cases. *Bannister*, ii. D-19.

Of 100 paretics, 74 per cent. gave certain history of syphilis, 12 per cent. other forms of venereal disease. In only 14 per cent. did history fail to give information on this point. Syphilis a factor of great etiological importance in general paralysis. *Emil Houghberg*, ii. D-20.

In general paresis of syphilitic origin lesion primarily vascular and does not progress to such an extent as to impair nutrition of nerve-cells; no cerebral symptoms except when they degenerate. *Raymond*, ii. D-20.

Undoubted fact that syphilis is a potent factor in general paralysis,—proven by frequency of syphilitic family history (50 to 92 per cent.); by number of syphilitics who develop general paralysis; by rarity of general paralysis among women except those who have led irregular lives; by its rarity in the country and among ministers and persons belonging to religious orders, etc. *Fournier*, ii. D-20, 21.

A manifestation of the third stage of syphilis. In 200 cases other etiological factors hitherto accepted found wholly insignificant. *Hirschl*, ii. D-21, 22.

In twelve cases carefully examined histologically neuritis of vagus more marked and more constantly present than in any other nerve. Mixed spinal nerves showed distinct proof of parenchymatous and interstitial neuritis more marked near their terminations at extremities than in the trunks. *A. W. Campbell*, ii. D-22.

Neither its symptoms nor its pathology entitles it to be regarded as a distinct disease; the general term paralysis cannot reasonably be held to imply more than a congeries of symptoms. *R. Farrar*, ii. D-22.

DIAGNOSIS. Cremasteric reflex altered in 80 per cent. of the cases of general paralysis; most frequently abolished, exceptionally exaggerated, rarely only weakened. *Marandon de Montyel*, ii. D-23.

Of 188 general paralytics tendo-Achillis or ankle- jerk normal only in 57. Inequality between the two sides very common. Sometimes loss of tendon-reflex an early symptom. *Ziehen*, ii. D-23.

In 75 per cent. of general paralytics trunk of ulnar nerve not painful on pressure, while in other forms of insanity compression of nerve as it lies between olecranon and inner condyle produces sharp pain and reaction. *Cramer*, ii. D-23.

Hallucinations very frequent. Those of alcoholic origin mainly visual and of painful character; those of disease affect all the senses, singly or combined; often of a gay character. *Barich*, ii. D-23.

In eight cases optic-nerve entrance creamy pink or leathery, without alteration of vessels; later, discs become whiter, and, finally, take on a bluish tint with slight cupping. Cutting off of field of vision on temporal side a fairly constant symptom; rate of its increase a measure of the progress of the disease. *Hepburn*, ii. D-23, 24.

A class of cases in which epileptiform attacks are characterized by a regular rhythmical return of muscular twitchings; occur synchronously with pulse-rhythm. *Kemmler*, ii. D-24.

Congestion of nervous centres an insufficient explanation of epileptiform seizures; are probably due to a urotoxæmia. Those who are free from these attacks are those who retain to the last the full functional activity of the kidneys. *Legrain*, ii. D-24.

TREATMENT. Two cases cured, one some three years and the other for one year, by subcutaneous abscess on the back along the spinal column, by means of cantharidate-of-potassium injections in the man and essential oil of turpentine in the woman. Recovery in above cases probably due to the general febrile state induced by the injections rather than to the formation of abscesses. Several recoveries from progressive paralysis after small-pox. *Marro and Ruata*, ii. D-26.

JUVENILE PARESIS OF THE INSANE.

ETIOLOGY AND PATHOLOGY. In 40 cases of juvenile paresis influence of syphilis even more marked than in the adult; out of 35 cases, all hereditary syphilis except 4; generally appeared between 10 and 16; duration averaged four years. *Alzheimer*, ii. D-24.

Of 42 cases so far reported history known in 37; syphilis unquestionable in 29 and probable in 8. As a rule, hereditary. Neuropathic heredity never more than a predisposing cause. *Regis*, ii. D-25.

Recorded cases mostly in girls. Case in which the post-mortem appearances in the

liver seemed to point to syphilis as a cause. *Bresler*, ii. D-25.

Post-mortem examination showing typical lesions. Tables of calvarium thickened; dura mater also and adherent in places, in other places separated from bone by false membrane. *Thompson and Dawson*, ii. D-25.

Case in a girl 9¾ years of age, terminating fatally in about sixteen months, without inherent disease. *E. L. Dunn*, ii. D-26.

TREATMENT. Best possible hygienic conditions. Child removed from all excitement and worry Regulation of diet. Iodide of iron and iodide of potassium among the most valuable remedies. *Wilmarth*, ii. D-26.

PARAPHIMOSIS. See PENIS, DISEASES OF.

PARASITES. See INTESTINAL PARASITES.

PAROTIDITIS (MUMPS).

PATHOLOGY. Specific microbe of mumps shorter and broader than the bacillus of influenza; stains with fuchsin a deep red at periphery and light red in the centre. *Letzerich*, i. H-47.

Case of suppurative parotitis caused by the typhoid bacillus; progress of the complication slow; parotitis became fully developed only after termination of primary disease. *Janowski*, i. H-48.

Three cases of suppuration in mumps; in one a bacteriological examination revealed small chains of streptococci and especially staphylococci. Suppuration, when it does occur, is always connected with a secondary infection, of salivary origin. *Barjon*, i. H-48.

Clinical and anatomo-pathological observations establish the buccal origin of parotiditis and the anatomical extension of its lesions. *Paul Claisse and Ernest Dubois*, i. H-48.

Efforts at insufflation, such as those required in the use of wind-instruments, may cause a relapse of parotitis in persons who have recently suffered from the affection; young musicians frequently affected. *E. Albert*, i. H-49.

Case of fatal peritonitis following orchitis, due to mumps. *Hornus*, i. H-49.

Case of puerperal infection in which an ulcerative endocarditis had caused septic emboli, which invaded the lungs and parotid gland; staphylococcus aureus found in the pus of the gland. *Sabrazès and Faguet*, i. H-49.

Two cases presenting an exanthem resembling measles, the result of the elimination by the skin of toxins secreted by the infectious agent of the disease. *Morard*, i. H-49.

Case in which mumps obviously held in check by measles until twenty-sixth day after actual exposure. *Beverley Robinson*, i. H-49.

Two cases of gouty parotitis. *Debout d'Estrées*, i. H-50.

Case of nephritis complicating mumps and ending fatally. *Le Roy*, i. H-50.

Of 626 cases of mumps, 184 complicated by orchitis,—153 simple and 51 double; 4 cases complicated by endopericarditis, 2 by double pneumonia, 10 by multiple arthralgia, 2 by serious encephalopathy; no deaths. *Trouillet*, i. H-50.

Death from mumps, the immediate cause being septicæmia or uræmia. *C. G. Slagle*, i. H-50.

PELVIC ABSCESS.

The first pelvic abscesses that follow labor or abortion are not all diseases of tubes or ovaries. Intestinal adhesions are not always troublesome. Intra-pelvic pus may become practically sterilized and not require enucleation of sac. *Watkins*, ii. F-75.

Value of these assertions shown by histories of several cases. *Byford*, ii. F-75.

TREATMENT. Simple puncture through vagina suffices when abscess-cavity is cut off by pathological processes from peritoneal cavity, as parametritis, pyocele, pyosalpinx. *Vogel*, ii. F-75.

When abscess large, chronic, and situated low in pelvis, complicated by rectal fistulæ, or puerperal in origin, best to dilate, explore, curette, irrigate uterine cavity, finally packing it with gauze, first having let out pus. Abscess-cavity irrigated with sterilized water and two drainage-tubes inserted,—one large, other small,—sutured together and retained *in situ* by suture into cervix. *Watkins*, ii. F-75.

Pelvic cellulitis in 79 cases; 67 recoveries, 8 improved, 4 not benefited. Rest, thorough cleaning of bowels, and cold or hot applications to abdomen. When temperature is down, blisters with hot poultices over abdomen. Opium only to relieve pain. In 95 cases abscess opened by lateral abdominal section, in others through vaginal opening where mass pointed most prominently, preferring vagina. *Paul F. Mundé*, ii. F-75, 76.

Conservative method of treating inflammatory pelvic affections. Incision behind cervix as soon as diagnosis established, penetrating inflammatory focus with finger; iodoform-gauze drain inserted and left in place. Twenty-seven cases apparently cured before destructive processes developed. *Henrotin*, ii. F-76.

Excellent results from firm plugging of vagina; it supports prolapsed structures and remedies congestion by dialysis. Plugs the size of walnut, after soaking with glycerin, introduced through large speculum and packed firmly. *Condamin, Noguès*, ii. F-76.

PENIS, DISEASES OF.

CANCER. Two cases of epithelioma,—one originating from inner layer of prepuce; other from neighborhood of fovea navicularis, producing condition simulating elephantiasis. *Buday*, iii. E-5.

Phimosis a strong predisposing factor. Evidence that syphilis can exert causative influence not strong. *E. Martin*, iii. E-5.

Case in which operation had been performed four years with no signs of recurrence. *Wishard*, iii. E-5, 6.

[Removal, in cases of progressive epithelioma, of all erectile penile structures, including crura of corpora cavernosa and the bulbous structures of the corpus spongiosum, the scrotum and testicles, most important. Keyes and Fuller, Assoc. Eds., iii. E-6.]

Case in which all erectile structures, scrotum and its contents, and lymphatic glands of groins were removed. *Chalot*, iii. E-6.

MECHANICAL RETENTION OF URINE. Cases in which retention of urine resulted from tumefaction of erectile structures of penis. *Hy. Morris*, iii. E-6, 7.

HYPOSPADIAS AND EPISPADIAS. Case of hypospadias extending to scrotum, with complete cleft between corpora cavernosa. *Englisch*, iii. E-3.

Cases of epispadias successfully operated by Thiersch's method. *Pozzi*, *Makins*, iii. E-3.

PHIMOSIS. Case in which phimosis was sufficient to cause retention of urine and secondary cystitis associated with pyonephrosis. *W. L. Roberts*, iii. E-4.

Operation for relieving phimosis without infecting wound when gonorrhœa or chancroid present. *R. M. Woodward*, iii. E-4.

In circumcision, glans penis inserted up to corona into open mouth of glass test-tube; foreskin drawn down over tube and fastened there by circular ligature, cut then made just below circular ligature, removing prepuce. *J. W. Ross*, iii. E-5.

Removal of phimosis often followed by natural cure of associated hydrocele or hernia. *Denucé*, iii. E-5.

PERICARDITIS.

PATHOLOGY. Three cases which showed absolutely sterile pericardial exudation. In two cases blood and spleen also sterile. *Banti*, i. B-56.

Case in which pericarditis developed three days before death. Cultivation experiments from the pericardial exudation absolutely negative, but from the spleen pure culture of bacillus coli communis obtained. Both ureters tied in rabbits; pericarditis appeared in every case. *Beco*, i. B-56.

At necropsy of a man who died of uræmia slight increase in pericardial fluid. Bacteriological examination of pericardial fluid negative. *Dissy*, i. B-56.

Serous effusions can perfectly well be caused by toxins originating from bacteria in remote regions. *Charrin*, i. B-57.

Case of septic bronchitis in which fetid pus was found in the pericardium, probably from suppurating ganglion found in subtracheal space. *Péron*, i. B-57.

Case of purulent pericarditis; entire depth of pericardium the seat of inflammation; pus and cultures showed Fränkel's diplococcus. *Ferguson*, i. B-57.

Case of chronic adhesive pericarditis with entire obliteration of the sac, not diagnosticated before death. *Oliver*, i. B-57.

Sudden return to normal position of a heart which had been fixed by very old pleuro-pericardial adhesions. *Hobbs*, i. B-57.

DIAGNOSIS. Friction-sound in pericarditis often in arrear of anatomical evolution of the disease. When in acute articular rheumatism, second sound in pulmonary area found to be more intense, louder, and more metallic; should cause search carefully to be made for a friction-sound; it precedes latter by from one to three days. *Josserand*, i. B-57.

Careful and repeated examination of the heart whenever a basal murmur is attended by accentuation of the pulmonary second sound. Although appearing early, it is the last to disappear. *A. S. Warthin*, i. B-58.

Physical sign of adherent pericardium is a visible retraction, synchronous with cardiac systole, of the left side of the back, in the region of the eleventh and twelfth ribs, and often, also, of less degree in the same region on the right side. *Broadbent*, i. B-58.

TREATMENT. Case in which right ventricle was accidentally tapped during a hurried attempt at paracentesis of pericardium on a patient in extreme collapse from septic pericarditis. Eight to ten ounces of pure blood evacuated; the heart soon gave sudden jump and started to beat again. Patient had every appearance of one dying asphyxiated; ether injected, then morphia subcutaneously, followed by improvement and recovery. *Sloan*, i. B-59.

Case in which paracentesis of pericardium was performed. Twenty-eight ounces of fluid removed relieved pressure upon heart; dyspnœa less marked. *Percy Kidd*, i. B-59.

Death in pericarditis with effusion not, in all probability, brought about by pressure of fluid upon the heart. *Sansom*, i. B-59, 60.

[In an editorial comment upon this discussion Fisher states so extensive an effusion may sometimes be met with in the pericardial cavity that it would be impossible to mistake it for enlargement of the heart, while careful marking out of the area of

dullness would distinguish it from a pleural effusion. Unfortunately such an effusion is most common in the later stages of chronic kidney disease, when permanent recovery or even prolonged improvement is almost hopeless; yet the danger of aspiration must be so small and the probability of giving relief so great that one would think it cannot but be advisable. Ed., i. B-60.]

Case of pericarditis after stab wound of pericardium. Puncture giving no relief, pericardium exposed. Transverse incision of four centimetres, and two litres of seropurulent fluid evacuated. Cavity washed out with warm salicylated water, borders of pericardial incision stitched to wound, and drainage-tubes inserted. Complete recovery in four weeks. *Eiselsberg*, iii. B-36.

Cases in which pericardial paracentesis failed to save cases. *Bramwell and Russell*, i. B-60.

Fatal termination of a case, although momentary relief afforded. *Sharp*, i. B-60.

Effusions of rheumatic origin do not, as a rule, require paracentesis; very large effusions may spontaneously disappear. Paracentesis in third intercostal space attended with extra risk. A sharp, hollow needle much to be preferred to any form of trocar and cannula. *S. Wert*, i. B-60.

[One advantage of the cannula is that, its extremity being blunt, there is no danger of scratching the surface of the constantly-moving heart as the pericardial cavity gradually empties itself and contracts. Whittier and Vickery, Assoc. Eds., i. B-61.]

INDURATIVE MEDIASTINO-PERICARDITIS. Two varieties,—one with adherent pericardium and marked increase of fibrous tissue in the mediastinum, sometimes completely filling it; pericardium closely adherent to surrounding parts. Other variety is an adherent pericardium with thickening of the sac, adhesion to the surrounding parts, and little or no mediastinitis. *Thomas Harris*, i. B-61.

PERITONITIS.

PATHOLOGY. Bacillus coli communis the first in order among the pathogenic microbes in peritoneal inflammations, becoming so under certain conditions. *Courtois-Suffit*, i. D-59.

When integrity of bowel impaired by disordered circulation, strangulation, distension, etc., bacillus coli may become migratory. *R. Douglas*, i. D-59.

The bacillus coli, the pneumococcus, and the staphylococcus have common property of producing peritonitis, according to virulence of culture. *Savinoff*, i. D-60.

Peritonitis of intestinal origin a multiple infection due to invasion of peritoneal cavity by various intestinal microbes, the majority of which are virulent. *De Klecki*, i. D-60.

Ulcer of stomach as origin of peritonitis may not be uncommon. *Knowling*, i. D-60.

Cases of intestinal hypertrophy following peritonitis. *Goldenberg*, i. D-61.

In suprahepatic peritonitis, generally due to perforation of stomach or intestine, most important sign is suppression of movements of diaphragm. *Potain*, i. D-61.

Rheumatic type. Early acid perspiration and hyperacidity of urine. Tympanites not so well marked; pulse stronger than in other forms. Temperature same as in acute articular rheumatism; no chills. *Grothan*, i. D-61.

Senile form in subjects over 70 years of age, with proliferation of white connective tissue. *Byron Robinson*, i. D-61, 62.

Peritonitis may occur as result of secondary syphilis after eruption; painless and may pass unobserved. *Lancereaux*, i. D-62.

MEDICAL TREATMENT. No food for several days. Two or three leeches to abdomen, and poultices. Calomel in small doses after leeches removed. Glass of ice-water with tinct. of opium, 10 to 20 drops in teaspoonful doses, from time to time, for pain; if not retained, tepid enema with 10 drops of the tincture. Most satisfactory results in six cases. *Revilliod*, i. D-63.

Cases successfully treated by insufflations of air into peritoneum. *Folet, Kooperberg*, i. D-63.

[This method may prove of advantage in cases where laparotomy is not permitted. J. P. Crozer Griffith, Assoc. Ed., i. D-64.]

Injections of camphorated naphthol after tapping. Autopsy showing influence upon tubercular process. *Catrin, Rendu*, i. D-46.

Death from acute peritonitis in a child caused by injection of 1 drachm camphorated naphthol. Autopsy showed hepatic cirrhosis instead of tubercular peritonitis. *Netter*, i. D-64.

Netter's fatal case due to erroneous diagnosis. Dose too strong for child. Small amount of effusion to be left in abdomen to avoid irritation of drug. *Rendu*, i. D-64.

SURGICAL TREATMENT. Case of peritonitis due to enteritis, in which recovery apparently aided by emptying small intestine to prevent farther infection of peritoneum. *Marsh*, iii. C-90.

Great distension may cause fatal paralysis of intestine. Safe to open coils at as many points as necessary to thoroughly drain them. Drawn out, held over a basin, incised in from one to four places, quickly washed off with hot saline solution, sewed up, and returned. *Mixter*, iii. C-90, 91.

Two cases of acute suppurative peritonitis in children without recognizable cause. Laparotomy with successful results. *Mirabella*, iii. C-91.

Two cases of diffuse purulent peritonitis

PERITONITIS (continued).
successfully treated by incision and drainage. In Berlin Charité twenty-five such cases; of these, five recovered. *Herrhold*, iii. C-91.

Purulent exudate may be entirely absorbed, but the surgeon should not rely upon this and wait six or eight days, since Fitz's statistics show that 56 per cent. of fatal cases occur within the first week. *Helferich*, iii. C-91.

Surgical intervention in peritonitis due to perforation of gastric ulcer rarely successful. Successful case; ulcer merely closed by serous sutures. *Schuchardt*, iii. C-91, 92.

TUBERCULAR PERITONITIS.

TREATMENT. More than 80 per cent. recover as a result of simply exposing peritoneal cavity to the air. This occurs because putrefactive bacteria produce a toxalbumin in fluid which is fatal to tubercle bacilli in peritoneum. Toxic agent absorbed by lymphatics; in knee-joint lymphatics fewer. *Morris*, iii. C-92.

Laparotomy performed late in disease; cure no longer secured, though life often prolonged. Curative action due to irritation of peritoneum, followed by inflammatory deposit. *Stchégoleff*, iii. C-92.

In cases in which laparotomy successful it should be repeated if necessary. Involution of tuberculous nodules rapid, but some disappear slowly. Caution in speaking of absolute cure advisable. *Nannotti and Baciocchi*, iii. C-92, 93.

In 18 cases of tuberculous peritonitis with effusion nodules invariably found on visceral and parietal peritoneum; 6 completely cured. *Frees*, iii. C-93.

Case in which tuberculosis sicca of large inguinal hernia disappeared after exploratory incision. *Jordan*, iii. C-93.

Laparotomy in 35 cases of diffuse peritonitis, with 33 cures. Operation limited, as a rule, to opening abdomen, drying, without producing traumatisms, which are considered superfluous and sometimes dangerous. *Mazzoni*, iii. C-93.

Frequency of an elevated temperature as a diagnostic symptom, though in some latent and chronic cases persistent subnormal temperature present. *Dunning*, iii. C-93.

TUMORS OF PERITONEUM. Fibrosarcoma of peritoneum. Incision three inches long. Growth, with peritoneum and muscles, cut round with scissors and removed. Edges brought together by interrupted silk sutures. Recovery. *Hutton*, iii. C-96.

PERITYPHLITIS. See Appendicitis.

PERTUSSIS (WHOOPING-COUGH).

ETIOLOGY AND PATHOLOGY. Streptococci found in pertussis may be considered as accompanying pertussis rather than as the direct cause of the disease. *Cohn and Neumann*, i. H-50.

Twenty-nine children suffering from whooping-cough placed in a ward with 123 others; not one of the latter took the disease. The pertussis children were in the last stages of the disease; in the city, on the contrary, contact with children suffering from pertussis occurs in the beginning. Advisability of new researches. *Weill*, i. H-51.

Dilatation of the right heart shown by weakened pulse, albuminuria, and systolic murmur of the tricuspid valve; five cases, one of which died in an attack of cough; post-mortem showed great dilatation of right heart; necessity of watching the heart during the whole course of pertussis and supporting its strength by early administration of digitalis as soon as venous engorgement becomes noticeable. *Silbermann*, i. H-51.

Three cases of cerebral paralysis directly or indirectly due to whooping-cough; most prominent cause, emboli. *Neurath*, i. H-51.

Arises from an acute form of encephalitis of cortex, somewhat analogous to poliomyelitis. Sequelæ of pertussis in the same category as influenza, variola, scarlatina, rubeola, and vaccination. *Strümpell*, i. H-51.

Interstitial tissue of gray matter inflamed in poliomyelitis. *Redlich*, i. H-52.

Rare complication; detachment of the retina; case also remarkable for hæmorrhages over the entire body. *Teillais*, i. H-52.

Great mortality (30 per cent.) of whooping-cough in hospitals, while in families it is very small,—due to air-space being entirely insufficient in former. *Roger*, i. H-52.

Analysis of causes of death in 500 cases; broncho-pneumonia, 128; pulmonary congestion, 34; bronchitis, 38; atelectasis, 2; hæmorrhage, 1; convulsions, 107; meningitis and cerebritis, 22; congestion of the brain, 16; apoplexy, 1; 84 to exhaustion and marasmus; 26 to diarrhœa and dysentery; 21 to asphyxia and syncope; 15 to tuberculosis following whooping-cough. *Johnston*, i. H-52.

TREATMENT. Antipyrin serviceable, though not a specific. *C. G. Cumston*, i. H-52.

Mandelate of antipyrin tried in sixty cases, ($\frac{3}{4}$ to $1\frac{1}{2}$ grains). In all but two cases paroxysms diminished; appetite improved; results better than when pure antipyrin used. *H. Rehn*, i. H-52.

Antipyrin more serviceable than mandelate of antipyrin. *Sonnenberger*, i. H-52.

Three very important factors: 1. Early recognition, suggested by puffiness under the eyes; then hydrogen peroxide or possibly cocaine applied locally to larynx. 2. Belladonna pushed to toxic effects in second stage. 3. Out-door life, sea-shore, if fore-

going not effective. *W. C. Hollopeter*, i. H-52, 53.

Catarrhal stage the period of microbic activity; the whooping-cough the after-effect of the toxins. Three hundred cases treated by internal administration of cocaine, in doses varying from $\frac{1}{16}$ grain in infants to $\frac{1}{3}$ grain in children of 5 or 6 years, three times in the twenty-four hours, with very favorable effect. Cocaine generally well borne by children; occasional looseness of bowels. *S. Russell Wells and L. J. G. Carié*, i. H-53.

Bromoform recommended. *P. J. Eaton, P. Schlieper, and others*, i. H-53.

Stupor follows the administration of initial dose of bromoform,—5 drops; effect passes off, but re-appears when dose increased. One drop for each year of the age. Irregular non-systematic administration aggravates the condition of the child. *Burnett*, i. H-53.

Bromoform a sedative, germicide, and antipyretic. *P. J. Eaton*, i. H-53.

Bromoform procures marked improvement; but slightly soluble; best to add alcohol. ℞ Bromoform, 48 drops; rectified spirit, 4 drachms; distilled water, 1 ounce; syrup of Tolu, sufficient to make 3 ounces. *Herbert B. Carpenter*, i. H-54.

Inhalations of bromoform for hæmoptysis in whooping-cough. About a glassful of alcoholic solution of bromoform, previously warmed to about 122° F., poured upon a plate; child slowly and regularly inhales for five or six minutes the vapors given off. Same practice in sick-room limits contagion. *Baratiers*, i. H-54.

Bromoform decidedly decreases the number of paroxysms and their intensity, on account of slight narcotic effect. Antispasmin (narceine-sodium and sodium salicylate) preferred: $\frac{1}{6}$ to $\frac{1}{4}$ grain three or four times daily for children under 1 year, $\frac{1}{3}$ grain up to 3 years old, and $\frac{2}{3}$ grain to older children in 2-per-cent. solution. *Max Stoss*, i. H-54.

Vaccination as curative measure tried in 100 cases; in 64 the vaccine took; of the 64 only 1—a baby of 4 months—died; it had a favorable effect on the course of the disease. *G. Cavalieri*, i. H-55.

Twenty-seven treated with quinine; remarkable results; $1\frac{2}{3}$ grains per year of the patient, three times a day. *Theodore Fischer*, i. H-55.

Intra-nasal insufflations, three or four times daily, of sulphate of quinine and resorcin in powder immediately after a paroxysm. *Luriaux*, i. H-55.

Antispasmin in 200 cases; good results when administered in a 5-per-cent. solution; 5 drops to 20 drops four times daily, according to age. *Frühwald*, i. H-55.

Threatening paroxysm may be arrested by carrying the child to an open window. Hence the child should pass the entire day out-of-doors, at all times of the year, provided it be not stormy. Only necessary to prevent the patient from running or talking. *Ullmann*, i. H-55.

Apomorphine very efficient in catarrhal stages. *John E. West*, v. A-29.

Subcutaneous injection of 30 minims of a 10-per-cent. solution of guaiacol and eucalyptol in sterilized oil. After third injection fits of coughing diminish notably. *De Chateaubourg*, i. H-56.

Local application to the larynx of a 1-per-cent. solution of resorcin most effective. *Moncorvo*, i. H-56.

Inhalations of a 1-per-cent. solution of formaldehyde manifestly diminish number and intensity of paroxysms. Patient wrapped up snugly and spray applied within this wrapping from two to twenty minutes, repeated three times a day. *Hinman*, v. A-74, 75.

Doses of chloral recommended in text-books too small; a child 1 year old will probably require 10 or 15 grains in twenty-four hours. *H. M. Haskell*, i. H-56.

Hot poultice, made large enough to cover posterior surface of lungs; on this the child permitted to lie for one hour; relief is almost immediate; after an hour, sweet-oil and camphor rubbed into skin previously covered by poultice; then cotton jacket applied. *McKee, J. Madison Taylor*, i. H-56.

Asaprol, aqueous solution of 1 per cent., applied on gauze over periglotteal region. *Moncorvo*, v. A-34.

Valerianate of zinc almost a specific, subduing specific element in three to four days. Dosage ranges from $\frac{1}{48}$ grain to $\frac{1}{2}$ grain, according to age, three times daily, two hours after meals; well rubbed up with sugar of milk. *Ch. Mantey*, i. H-56.

PHARYNX, DISEASES OF.

ACUTE AND PHLEGMONOUS PHARYNGITIS.

PATHOLOGY. Pneumococcal angina, studied by Jaccoud; clinical aspect similar to diphtheria. Bacteriological examination shows pneumococcus alone instead of Lœffler's bacillus. Characteristic symptom: Suddenness of diffusion of angina and violent chill, as in pneumonia. *Wirnberg*, iv. D-56.

Sore throat of menstruation due to streptococci. Generally benign; may terminate in formation of abscess or give rise to facial erysipelas. *R. Petit*, iv. D-56.

First recorded case of acute phlegmonous pharyngitis, complicated by purulent meningitis. *S. von Stein*, iv. D-57.

Case of general infection by the streptococcus in a child of 1 year, following catarrhal angina. *Rocaz*, iv. D-57.

Two cases of adenophlegmon of the neck following angina. *Troquart*, iv. D-57.

PHARYNX, DISEASES OF (continued).

Two forms of pharyngitis indicating the presence of diabetes or albuminuria, hyperæmic and anæmic. In anæmic, membrane grayish, granular, often traversed by small vessels. Hyperæmic form alone presents characteristic features: Discomfort in throat, trouble in swallowing saliva, and mucous membrane swollen, hypersensitive, and with excess of secretion. Voice often a little husky. First indication of diabetes or albuminuria. Almost pathognomonic. *Garel*, iv. D-57.

CHRONIC PHARYNGITIS. Menthol harmless in patient's hands and possesses anæsthetic and antiseptic properties; 1 part in 10 parts sweet almond-oil, applied two or three times daily with water-color brush into each nostril, bending patient's head backward; then with a larger brush the pharynx is freely swabbed. *Hamon du Fougeray*, iv. D-58.

FOREIGN BODIES IN THE PHARYNX. 1. No foreign body, presence of which has been actually detected, ought to be allowed to remain impacted, even if at the time it does not produce any serious symptoms. 2. No attempt should be made to ram an angular or pointed body down forcibly. *Semon*, iv. D-68.

Habit of giving bread-crumbs in these cases should be abandoned; bread-crumbs arrested and form a collection above the foreign body, increasing the difficulty. *Castaneda*, iv. D-68.

MEMBRANOUS PHARYNGITIS. Necessity of revising nosography of anginas shown by the fact that in 860 bacteriological examinations 42.32 per cent. showed the presence of Lœffler's bacillus only, and 57.68 per cent. showed other bacilli. At the present time more errors are made with respect to diphtheria than to any other angina. *Landouzy*, iv. D-58.

Infection occurring in 5 of 28 guests by membranous pharyngitis and 4 of severe diphtheria (3 dying) through presence in the restaurateur's house of a case of diphtheria. In the 9 patients incubation lasted exactly seventy-two hours. *E. Meyer*, iv. D-58.

TREATMENT. Guaiacol with glycerin, equal parts for adults and 1 part of guaiacol to 2 parts of glycerin for children. Care should always be taken to shake the bottle before swabbing. *Darbouet*, iv. D-59.

[Common coal-oil is exceedingly effective in these cases, applied with a cotton pledget every three hours. Ed.]

PHARYNGOMYCOSIS. An exceedingly well-marked corneous transformation of the epithelium of the tonsillar follicles noticed microscopically. Presence of leptothrix secondary. *Siebenmann*, iv. D-62.

Case in which intercurrent pleuropneumonia seemed to be the cause of the disappearance of the mycotic affection. *John Dunn*, iv. D-62.

TREATMENT. Four illustrative cases. Galvano-cautery of no avail except in the tonsil; most cases end in spontaneous recovery. *J. Wright*, iv. D-62.

Best treatment is that of Wagnier. By means of chromic acid melted on the extremity of a pharyngeal probe, each mycotic spot is touched, avoiding healthy portions. Renewed in eight days. *Percepied*, iv. D-63.

RETROPHARYNGEAL ABSCESS. Disease one capable of suddenly attacking children previously in perfect health. *Koplik*, iv. D-63.

Case in an infant in which death was apparently due to projection forward of the pharyngeal abscess and the consequent occlusion of the rima glottidis. *Biggs*, iv. D-63.

Case in a 3-month-old infant in which abscess dissected down behind œsophagus as far as fourth rib. *Bremner*, iv. D-64.

TREATMENT. Three cases caused by Pott's disease, and opened by Burckhardt's method; easy and applicable to various kinds of abscesses. *Reverdin*, iv. D-64.

Incision by the pharynx to be preferred in acute retropharyngeal abscess; contra-indicated in prevertebral and lateropharyngeal abscesses. *Escat*, iv. D-64.

Case in which a child, aged 14 months, suffering from a large retropharyngeal abscess, died suddenly on an incision being made into latter. No œdema of glottis. Death believed to have been due to syncope, of reflex origin. *Piatot*, iv. D-64.

Abscess of the maxillo-pharyngeal region, with ulceration of the internal carotid and rupture of the abscess in the pharynx and external auditory meatus. *Meslay*, iv. D-65.

SYPHILIS OF PHARYNX. Case of perforation of palate from congenital syphilis in a girl aged $10\frac{1}{2}$ years; unusually early age. Probably arose from deep, painless, and unnoticed ulceration rather than from the breaking down of a gumma. *Scanes Spicer*, iv. D-59.

Case showing secondary manifestations of syphilis in the mouth and pharynx two months after the primary chancre. *Mermet*, iv. D-59.

Child, 3 months old, suffering from hereditary syphilis with perforation of the palate. But two such cases of perforation of the palate in children recorded. *Von Genser*, iv. D-59.

Case of syphilitic cicatricial adhesion of the tongue to the palate and pharyngeal walls. Subsequent to two operations performed to separate united parts, time necessary for reunion of cicatricial tissue about the same,—namely, six to eight weeks.

Contraction began as soon as process of repair commenced. *Varsant*, iv. D-60.

Two spots in the naso-pharyngeal space, immediately behind the choanæ and on border near oro-pharyngeal space, in which adhesions usually observed. Larger cicatricial formations always circular. Structure membranous, not at all vascular. *Heymann*, iv. D-60.

TREATMENT. Method of operation for adhesion: After cutting palate free posterior nares powdered with europhen and packed with europhen gauze for ten days. Rubber bag, like a colpeurynter, then introduced several hours daily at first and later less frequently. *Lieven*, iv. D-61.

In ulcerative processes in mouth and throat the greatest precaution necessary in regard to diagnosis. Case with extensive destructive process, in which large doses of iodine gave negative results, whereas a few mercurial injections brought about a striking recovery. *Pel*, iv. D-61.

Opposite also observed; where mercury had failed, iodide of potassium brought about recovery. Alternate treatment with both remedies recommended. *Sikkel*, iv. D-61.

TUBERCULOSIS OF THE PHARYNX.

PATHOGENESIS. Three cases showing no evidence of the ulceration having begun on the sides of the pharynx, and from thence spread to the posterior wall and the soft palate, which is said by Mackenzie to be the usual course. *Kiaer*, iv. D-61, 62.

The nearer the air the tubercle bacillus is ingrafted, the quicker the death of the patient. *E. Harrison Griffin*, iv. D-62.

Case in which examination showed perforation of hard palate, through which antrum of Highmore could be seen. Wall of ulcer covered with miliary tubercles. Ulcer following the extraction of a carious tooth. *Walter*, iv. D-62.

TUMORS OF THE PHARYNX. Two cases showing possibility of spontaneous recovery from pharyngeal and naso-pharyngeal tumors. *D'Aguanno*, iv. D-65.

Diagnosis easy if prolonged observation is possible. Changes—ulceration and resorption of the neoplasm—characteristic. At onset, confusion with syphilis easy. Arsenic and palliative surgical measures. *Chiari*, iv. D-65.

ANGIOMA. Cases of angioma of the pharynx cause no discomfort or functional disturbance; as a rule, no operation required. *McBride, Moure, Lichtwitz*, iv. D-66.

ANEURISM. Case of aneurism of the pharynx. Important in operations, especially in amygdalotomy. *Rosenthal*, iv. D-67.

Case of false traumatic aneurism of the descending palatine artery. *Uhl*, iv. D-67.

FIBROMA. Case of fibroma of the posterior wall of the pharynx; removal by cold-wire snare, followed by definite recovery. *Ficano*, iv. D-66.

LIPOMA. Case of fibrolipoma of the pharynx,—the rarest of all occurring in the pharynx. *Roe*, iv. D-67.

MALIGNANT GROWTHS. Case of epithelial cancer of the pharynx. *Ribbert*, iv. D-66.

Cases of pharyngeal malignant growths. *Wm. Hill, Posthumus Meyjes*, iv. D-66.

Diagnosis of lymphosarcoma difficult. Age of patient, extreme hardness of the growth, and the inefficiency of mercurial or iodide treatment may assist. *Stoerk*, iv. D-65.

PHARYNGOTOMY. Voluntary suprahyoid pharyngotomy,—an attempted suicide by cutting the throat. Wound immediately above the hyoid bone, and opened the pharynx so widely that in coughing epiglottis projected. This method of approaching the pharynx presents many advantages, and could be easily imitated by the surgeon. Case showed that it could be easily closed. *Jeremitsch*, iv. D-67.

Total extirpation of the epiglottis by subhyoidean pharyngotomy. Epiglottis not indispensable to normal act of deglutition. *Rosenbaum*, iv. D-67, 68.

PHENACETIN, POISONING.

Case showing decided leucocytosis and peculiar alteration of red blood-corpuscles, surrounded by degenerate forms of every variety. Hæmoglobin in great part dissolved. Forty-five to 75 grains cause acceleration of respiration and pulse, coma, vomiting, and cyanosis of mucous membranes. *Krönig*, v. D-19.

[General methæmoglobinuria and destructive kidney changes occasionally follow the use of phenacetin, which fact reminds us that the initial dose of phenacetin, as well as other new antipyretic drugs, should always be small. C. SUMNER WITHERSTINE, Assoc. Ed., v. D-19.]

Fatal case in a 17-year-old boy suffering from occipital headache. After an evening-dose of 15 grains, vomiting, great weakness, bluish-gray color of the face and lips, pulse weak. General icterus: urine thick, dark reddish-brown, containing masses of almost pure blood. Death two days after ingestion, due to universal methæmoglobinæmia. *Krönig*, v. A-123.

Two cases in which it caused dyspnœa and orthopnœa. *J. Lamond Lackie*, v. A-123.

Case in which 5 to 8 cachets containing each 10 grains, taken in twenty-four hours caused palpitation of the heart, scarlet face with exception of nose and upper lip, extremely rapid pulse, headache, dyspnœa, and diaphoresis. *John Harold*, v. A-123.

PHIMOSIS. See PENIS, DISEASES OF.

PHOSPHORUS, POISONING.

Intensity of pathological changes found in the liver and in the neighborhood of the small interlobar systems. Canaliculi show no visible catarrhal or desquamating changes. *Amon and Falcone*, v. D-19.

In slow phosphorous poisoning fasting rabbits resist longer than those that are fed. *Lo Monaco*, v. D-19.

Investigations among hands of State match factories of France showing that men employed in making white-phosphorus matches, without exception, suffer more or less from phosphorism. *Magitot*, v. D-20.

Permanganate of potassium has absolutely no antidotal virtues *per se* against phosphorus. *W. Moor*, v. D-20.

PITYRIASIS.

PITYRIASIS MACULATA. An eruption resembling pityriasis maculata et circinata, probably induced by alcohol. *H. H. Morton*, iv. A-46.

PITYRIASIS RUBRA. Case showing lesions in a pronounced form much improved in twelve days by administration of thyroid tabloids. *Scatchard*, iv. A-47.

PITYRIASIS VERSICOLOR. Case of infantile syphiloid due to pityriasis versicolor. *Fournier and Sabouraud*, iv. A-47.

Though harmless, this affection difficult to get permanently rid of. Following ointment, used for from eight to fourteen days, completely cures the disease: ℞ Bisulphurous solution of calcium, 2 ounces; vaselin, 5 drachms. To prevent recurrence, patient to wash once a week with Eichhoff's quinine-soap for a month or two. *Leistikow*, iv. A-47.

PLAGUE.

1. Transmission either direct by contact or indirect through objects sullied by sufferer. 2. Isolation preserves from the plague. 3. Inoculable. 4. Microbe clearly made out by Yersin and Kitasato. *Netter*, i. G-64.

Experiments with the pig, which is but slightly susceptible to the disease. Inoculation followed by rise in temperature of from 2° to 4° F. Serum showing no plague bacilli either by microscope or by cultivation. Two animals inoculated showed same symptoms as the pigs. *J. H. Lawson*, i. G-65.

Tarabagania tchuma,—a plague arising in connection with the tarabagania, a rodent closely allied to the marmot in Russia. No case of recovery has yet been met with; death always occurs on the second or third day. *Biéliavski and Riéshetnikoff*, i. G-65.

PLASTIC SURGERY.

BONE-GRAFTING. Bony re-implantation and transplantation after trephining of the skull become true grafts. Experiments with heteroplastic grafts on the monkey, cat, and rabbit demonstrating this, but indicating diminished vitality of transplanted portion. *Mossé*, iii. K-56.

Vitality of fragments implanted is frequently only apparent; they often undergo anæmia-necrosis and are substituted by new bone-tissue. *Barth*, iii. K-6.

Use of sponge-grafts gives negative results, but transplantation of decalcified bone not only hastens regeneration, but also regulates the growth of the bone. *Crickx and Van Engelen*, iii. K-6.

Filling of bone-cavities with plaster made into a paste with 5-per-cent. solution of carbolic acid, as recommended by Dreesmann, a method of considerable value. *Heydenreich*, iii. K-6.

SKIN-GRAFTING. Thiersch's method studied in 116 cases. Curetting of the surfaces for which flaps intended abandoned. To lessen pain caused by grafting and bleeding, constricting bandage applied above. Dry iodoform gauze or linen with boric-acid ointment for wet dressing. *Auerbach, Jottkowitz, and Schultheiss*, iii. K-1.

Grafts adhere perfectly to tendons deprived of sheaths and to bones deprived of periosteum. *Urban*, iii. K-1.

Thiersch's method. Greatest efficiency in cases in which tumors removed are so large that flaps cannot be brought together. *J. C. Oliver*, iii. K-1.

Two cases of granulating surfaces cured by transplantation of large flaps. *Wm. B. Hopkins*, iii. K-1.

Piece of transplanted skin should not merely be laid upon the surface where it is expected to grow, but should be sewn there. *John Dunn*, iii. K-2.

[The severe pain caused by the removal with scissors of the small pieces of skin required for grafting purposes may be prevented by first freezing the spot with an ethyl-chloride spray. ED.]

In making callous grafts, the part from which graft is to be taken should be given frequent and prolonged baths in a strong sodium-chloride solution of hot water, accompanied by firm, but gentle, friction. *Granbury*, iii. K-2.

New method for obtaining material for skin-grafting,—*e.g.*, employing exfoliated epithelium, the result of vesication. A piece an inch square sterilized in warm boric-acid solution, then divided into twelve pieces, and applied to granulating surface. Seven rapidly developed into vigorous islands of skin. Marked absence of cicatricial contraction; scar-tissue firm and well nourished. Best results obtained from thin, transparent, epithelial tissue. *Zera Lusk*, iii. K-2, 3.

Case of epithelioma following skin-grafting. *Dunham*, iii. K-3.

ANIMAL GRAFTS. Skin of young animals killed for the purpose used. Best results obtained from dogs, least satisfactory from frogs. Grafts applied without previous scraping. Details of ten cases; results in four perfectly satisfactory. Resulting scars stronger and show less tendency to contract. Pigment speedily disappears. *Miles*, iii. K-3, 4.

Case in which frog-skin "took" even better than the human skin. Skin soft and immature, however, and required constant care and dressing for three months after. *Seeley Smith*, iii. K-4, 5.

Inner layer of shell-membrane of a hen's egg gave certain degree of success, particularly in extensive burns. *Amat*, iii. K-5.

SPONGE-GRAFTING. Sponge-grafting used with success in the case of obstinate ulcer of the leg secondary to severe fracture. In sections of cicatricial tissue where sponge-grafting had been used, trace of the sponge never found. *D'Ambrosio*, iii. K-6, 7.

CHEILOPLASTY. New method of autoplasty of the lower lip. (See text.) *Guinard*, iii. K-9, 10.

Removal of an epithelioma of the entire lower lip by Regnier's method. *Gallaudet*, iii. K-10.

In a method such as Regnier's, consisting in working flaps in from the side, good results were obtained except mouth a little pinched; bringing parts up from below and sides has given best results. *Abbe*, iii. K-10.

Method of Regnier does not compare with that of Malgaigne. In latter, lip entirely covered with mucous membrane from time the operation finished and left entirely free from the teeth. *McBurney*, iii. K-10.

One of the advantages of Regnier's operation is its simplicity. Malgaigne's operation requires experience. *Gallaudet*, iii. K-10.

Methods of cheiloplasty in cases in which extensive loss of substance has occurred. (See text.) *Berger*, iii. K-10, 11.

RHINOPLASTY. Series of cases; one of prominence of nasal bones following fracture, treated by skin-flap raised to the root of the nose, chiseling off projecting bone, suturing loose cartilage, and straightening the septum, leaving an imperceptible scar. *H. L. Smith*, iii. K-7.

Case of total rhinoplasty by the Italian method modified. *Jonnesco*, iii. K-7, 8.

Metallic substitute for nasal bones, absence of which is so often the cause of failure in the Tagliacotian operation. Bridge supported by a metallic tripod. Excellent results finally discounted by suppuration. *Martin*, iii. K-8.

This avoided by plunging extremities of the tripod into holes bored in the surrounding bone. *Chaput*, iii. K-8.

Saddle-back nose corrected by insertion of a canoe-shaped piece of aluminium, five-eighths inch long, between the skin and bones, through a small incision on the ala, thus raising the bridge of the nose to its proper line. *Stimson*, iii. K-8, 9.

Traumatic deformity of the nose restored after eighteen years by means of a platinum bridge. *Foote*, iii. K-9.

PLEURISY.

PATHOLOGY. Nearly two-thirds of cases of pleurisy find their origin in tuberculosis of the bronchial glands. *Eichhorst*, i. A-73.

Great percentage of cases of serous pleurisy due to tuberculosis, though a few are due to exposure to cold or some similar cause. *Kr. Thue*, i. A-73.

Bacteriology of sero-fibrinous pleurisy shows that few of these cases are tuberculous, though pathogenic bacilli frequently noted in the effusion. *Fernet*, i. A-74.

In 32 cases of serous pleurisy, no microbe in 28, either under microscope, by cultures, or by inoculation. Of 28 apparently sterile cases 16 soon followed by evident tuberculosis. *Lemoine*, i. A-74.

Pleurisy the precedent, instead of the succedent, of tubercular disease. *Alex. James*, i. A-74.

Clinical and pathological evidence shows that pleurisy, from being apparently simple, may become tubercular. That pleurisy might be tubercular in its origin known from the fact that it is often the starting-point of a general tuberculosis. *Affleck*, i. A-75.

DIAGNOSIS. On auscultating chest at level of pleuritic effusion when patient speaks voice not confused, as in normal state, but clear and more acute; appears to come from a distance; not vacillating nor tremulous; the "telephonic voice." *Carmona y Valle*, i. A-75, 76.

Characteristic signs of many cases of purulent diaphragmatic pleurisy: Dullness of antero-inferior portion of thorax, upper boundary of dullness forming a concave line inferiorly. *Merklen*, i. A-76.

Displacement of the heart the most valuable physical sign of pleural effusions as distinguished from consolidation. *Fussell*, i. A-76.

Characteristic feature of small effusions is the curve of the upper boundary of flatness as determined by light percussion; beginning at spine, it extends almost horizontally usually to a point in front of posterior axillary line, where it drops to base of thorax. The larger the effusion, the wider the zone and the more anterior the drop. (See text.) *Whitney*, i. A-76.

Value of antero-posterior wave in pleuritic effusions. Must be sought for with the

PLEURISY (continued).

hand at base of thorax, at level of costo-diaphragmatic sinus. If one hand be used, short and rapid percussion produces a trembling sensation. *Bard*, i. A-77.

Test for distinguishing between serous exudations and simple transudations: If a drop of glacial acetic acid be added to a serous exudate a slight, white cloud forms in the wake of the falling drop; precipitate redissolves on addition of more acid. No such reaction takes place in mere transudation. *Rivalta*, i. A-77.

ATYPICAL CASES. Two cases with hæmorrhagic effusion. *Lipari*, i. A-77.

Simple pleural hæmatoma only a primary tubercular hæmorrhagic pleurisy of a curable character, distinguishable from purely tuberculous hæmorrhagic pleurisy by greater delay in appearance of pulmonary tuberculosis. Prognosis more favorable. *Mesnil*, i. A-78.

Case in which, in an attack of pleurisy and pneumonia, temperature rose on two occasions to 114° F. *Stanley*, i. A-78.

Two cases in which serous effusion opened exteriorly. *Sahli*, i. A-78.

Case in an infant, 4 weeks old, showing no symptoms during life. Found dead in bed. At post-mortem, left pleural cavity found full of pus; lung seemed never to have expanded. *Mackintosh*, i. A-79.

Autopsy, on a child aged 7 months, showing a cavity lined with pyogenic membrane, but otherwise dry, and another cavity containing an ounce of pus. *Southworth*, i. A-79, 80.

TREATMENT. New mode of treating dry pleurisy and pericarditis: Sterilized olive-oil (15 to 45 minims) injected where presence of friction shows that the two serous surfaces are not working smoothly. Not painful. *De Cérenville*, i. A-78.

Following combination: ℞ Guaiacol, 45 minims; glycerin, tinct. of iodine, of each 5 fluidrachms. Painted over posterior portion of thorax on affected side. Reaction in about four hours. *Ségaléa*, i. A-79.

Tubercle bacillus cause of majority of cases of pleurisy. A certain number due to rheumatism. Salicylates of value in rheumatic and other cases. *W. E. Ashton*, iii. B-14, 15.

Massage in pleurisy with or without effusion. Movements for thoracic cavity combined with movements of other parts of body and muscles of inspiration. *Kemper*, i. A-79.

In fever accompanying acute pleurisy, good results from frictions of 10-per-cent. creasoted alcohol; dessertspoonful each time, rubbed into inner surface of thigh. *Hache*, v. A-8.

PLEURAL EFFUSION. In several cases following points of interest: Although pleura had been full of fluid for twelve months, rapid re-expansion. After thirty-seven tappings fluid as clear as at first, in spite of admittance of air. Advice given in text-books to abandon paracentesis after two or three trials should be modified. No risk if operator careful to keep instruments aseptic. *West*, iii. B-14.

Free incision into pleural cavity in middle axillary line and insertion of three inches of large-bored India-rubber drainage-tube. Rapid recovery. *Morison*, iii. B-15.

Case of obstinate pleuritic effusion with negative pressure of four inches of water with increasing effusion, converted into positive pressure of four inches and a half by accidental introduction of air. Admission of aseptic air into pleura may be in certain cases not only justifiable, but even a very successful method of treatment of chronic effusion. *West*, iii. B-15, 16.

Necessity of preventing air from entering pleural cavity, cause of many of the unfortunate sequelæ noted. Trocar which obviates this danger. *Svenson*, iii. B-16.

Case of displacement of the heart following thoracentesis. *Cassäet*, iii. B-16.

[Medication as a preventive and a curative agency in pleuritic effusion is worthy of trial before having recourse to aspiration. As there is a great tendency, after repeated tapping of the chest, in cases of serous effusion, to the development of pus, it is claimed by many observers that all the possible medicinal agencies should be used persistently at the outset to remove such accumulations. The results attending such practice have been very encouraging, and it is evident that, in the cases where the interthoracic fluid has been absorbed under the influence of medication, it is less likely to accumulate again than when it is removed by aspiration. Active measures of treating pneumonia and pleurisy in former times left but few cases to develop serous pleural effusion, and there is a growing tendency on the part of general practitioners and of some surgeons to attack vigorously by medication all cases of serous accumulations within the thorax. It is demonstrated that the transition to empyema is averted frequently by medication. J. McFadden Gaston, Assoc. Ed., iii. B-14, 15.]

PNEUMONIA.

PATHOLOGY. New capsular bacillus, in addition to the Klebs-Lœffler bacillus, in a case of severe broncho-pneumonia. Two or three times as long as thick, ends rounded, and inclosed in a definite capsule. *Wright and Mallory*, i. A-55, 56.

There exist at least two pneumococci of Friedländer, resembling each other morphologically, but differing from each other in their action on sugars. *Grimbert*, i. A-56.

Details of an epidemic which proved without doubt the infectious character of the disease. Cold a factor of no value. *Duncan*, i. A-56.

If cold not the real cause of the disease, it certainly is a predisposing one. *Lancereaux*, i. A-56.

Contagious character of pneumonia undoubted; cases pointing to an exaltation of the virulence of the microbe during its sojourn in the lungs of the contagion-giving patient. *Talamon*, i. A-56.

Local epidemic in Florence, presenting all the characters of virulent pneumonia, supposed to be due to imported parrots; a mere supposition. *Malenchini*, i. A-56, 57.

[Opinion of clinicians has for years inclined more and more to the view that it is impossible to explain pneumonia as a simple inflammation of the lungs. The abrupt onset, well-defined course, and definite crisis characteristic of the disease; the fact that the pulmonary lesion and the clinical phenomena do not run *pari passu*, and the occasional occurrence of epidemics point to the conclusion that the true nosological relations of pneumonia are with the specific fevers rather than with the inflammations. *Lancet*, i. A-57.]

In cases of croupous pneumonia pursuing a favorable course there is, as a rule, a marked increase in the number of leucocytes during the febrile period. Presence or absence of leucocytosis only shows the virulence of the bacterial poison; not a criterion of absolute prognosis. *Billings, Jr.*, i. A-57.

Febrile period frequently accompanied by an increase of leucocytes, majority being advanced in development. Likely that young cells mature abnormally early, thus facilitating their emigration and hastening their destruction. *Stiénon*, i. A-57.

With few exceptions, white corpuscles increased in pneumonia, sometimes even doubled or quadrupled. Leucocytosis develops very soon after onset of disease, increasing progressively until eve of crisis and disappearing after it. *Petroff*, i. A-57, 58.

Sputum at first rusty, changes progressively and then loses its color. Modifications due to the action of the pneumococcus on the blood by reducing and decomposing the hæmoglobin. *Pacinotti*, i. A-58.

Acute œdema of pneumonia due to an intra-alveolar inflammatory reaction directly produced by the diplococcus of Fränkel. *Rivalta*, i. A-58.

Pulmonary inflammation ending in induration, though it occurs perhaps in only 1 per cent. of the cases, nevertheless does occur. Clinical symptoms are continuation of fever, persistent dullness, and progressive retraction of thoracic wall. *Fränkel*, i. A-58, 59.

PATHOLOGY OF CROUPOUS FORM. Lesions characterising croupous pneumonia are the result of an acute phagocytic reaction of the organism in response to a bacterial infection of the lungs, the pneumococci of Fränkel being the infecting agent. *A. E. Wright*, i. A-59.

Croupous pneumonia as a typical croupous inflammation to be placed side by side with those of the mucous membranes, process being exactly similar. *Hauser*, i. A-59.

Diphtheria bacillus found in the substance of the affected lung in a case of primary, right-sided, lobar pneumonia, complicated with an acute purulent meningitis. *Ohlmacher*, i. A-59, 60.

Case in which marked soreness of the throat suddenly appeared. Buccal cavity showed whitish, false membranes, adherent to the uvula and to right posterior pillar. Bacteriological examination disclosed only cocci, diplococci, and streptococci. *Negel*, i. A-60.

Diphtheria bacillus in areas of broncho-pneumonia met with in ten cases; also in the kidneys in one case. *Kutscher*, i. A-60.

ACUTE FORM OF PNEUMONIA.

PATHOLOGY. Two facts noted after death: (1) general anæmia of all organs; (2) absence of so-called collateral hyperæmia in parts of the lungs unaffected by pneumonic process. Leucocytosis a regenerative process to compensate for the loss to the blood occasioned by the exudation; hence, blood-letting harmful. Infusion of saline solution should be adopted to compensate for oligæmia. *Bollinger*, i. A-60, 61.

TREATMENT. Case of basal pneumonia. Intra-venous injection of 6½ fluidounces of chloride of sodium, 0.75 per cent., and bicarbonate of sodium, 0.50 per cent., was made, and within two hours patient had a chill, followed by abundant perspiration, defervescence complete in four hours. Similar treatment in several cases, always with similar success. *Galvagni*, i. A-61.

ATYPICAL FORMS. Case of vagus pneumonia, due to pressure on pneumogastric by enlarged carcinomatous mediastinal glands. *Hanot*, i. A-61.

Lesions of pneumogastric centres may in some cases account for the pulmonary changes. A neuro-infective theory must be added to the others advanced. *Meunier*, i. A-61.

Case of intermittent diplococcic pneumonia,—an uncommon form. *Arader*, i. A-61, 62.

There exists in the adult a variety of acute pulmonary tuberculosis, an "acute tuberculous broncho-pneumonia," in which the general symptoms predominate in a remarkable manner. *Albert Robin and Leredde*, i. A-62.

Case demonstrating the influence of trau-

PNEUMONIA (continued).

matism in pneumonia,—denied by certain authors; followed a classical course. *C. Guérin*, i. A-62.

Three cases in which pneumonia ensued upon injuries to the chest. *Mongour*, *André Petit*, i. A-62.

SYMPTOMATOLOGY OF PNEUMONIA. In children limited area of dullness easily overlooked unless light percussion employed. Sometimes disease is diagnosed as existing on wrong side, due to affected lung being obstructed; while unaffected lung performs functions of both and is less resonant on percussion. Pain sometimes referred by children to the abdomen. *Crozer Griffith*, i. A-62.

Knee-jerks absent in some cases of croupous pneumonia; in one, inaction of intercostal muscles during ordinary breathing, but perfect action when patient told to draw in his breath. On recovery, knee-jerks returned and muscles acted perfectly. Central lesion the cause of non-pulmonary symptoms, high temperature, rapid respiration, infrequent pulse, etc. *Hughlings-Jackson*, i. A-62, 63.

Pleuritic effusion, occurring as a terminal symptom of pleuro-pneumonia, pneumonia, as a rule, of more than average intensity, and associated at onset with signs of acute pleurisy. Friction-sound apt to be of short duration; mucous râle following the friction; a change in the percussion-sound, which becomes flat, and sinking of intercostal grooves during inspiration, followed by bulging if accumulation large. *Westbrook*, i. A-63.

Tumefaction of the liver after the crisis or after defervescence; observed in four cases. *Tordeus*, i. A-63.

Herpetic eruptions due to individual peculiarity, not to disease, and not to be regarded as critical. Mortality of 9 per cent. in pneumonia with herpes, as compared with 25 to 30 per cent. in pneumonias taken *en bloc*. *Talamon*, i. A-64.

COMPLICATIONS. Four cases in which acute nephritis occurred in the course of pneumonia. *Popoff*, i. A-64.

Case proving that the pneumococcus may affect the kidney several days before the signs of pneumonia proper become evident. *Caussade*, i. A-64.

Case of frank pneumonia terminating in abscess of the lung. *Clara T. Dercum*, i. A-64.

Gangrene of the lung following pleuro-pneumonia. *Goelet*, i. A-64.

Case terminating in pulmonary gangrene, univalvular hypertrophic endocarditis, and enormous renal infarcts. *Bosquier*, i. A-64.

Case of apparent broncho-pneumonia; in reality one of generalized infection due to the pneumococcus. An immense quantity of greenish-yellow, inodorous pus issued from the umbilicus, containing pure encapsulated pneumococcus of Talamon-Fränkel. *Pochon*, i. A-64, 65.

Two cases of pneumonia in which meningitis occurred as a complication. *Jules Simon*, i. A-65.

Case in a child, 3 years old, with meningeal symptoms and jaundice. *J. H. W. Rhein*, i. A-65.

Case of traumatic pneumonia, gangrenous in character and accompanied by pneumothorax and purulent pleurisy; death from suppurative meningitis. *Tahier*, i. A-65.

Complete aphasia in a boy 9 years old; gradually disappeared after two weeks. *Isager*, i. A-65.

Case of neuritis of brachial plexus. *Leszynsky*, i. A-65.

Cases of peripheral paralysis. *Bozzolo and Westhoff*, i. A-65.

Case of critical delirium after pneumonia. *Calandruccio*, i. A-65.

Right external oculo-motor paralysis in the course of acute pneumonia of the left apex in a child of $2\frac{1}{2}$ years; regarded as of toxic rather than of meningeal origin. *Voute*, i. A-65.

Two cases of suppurative arthritis developed in the course of genuine pneumonia. *Vogelius*, i. A-65.

Case of arthritis complicating acute pneumonia. *Meunier*, i. A-65.

Case of purulent ophthalmia with pneumococci in an alcoholic patient suffering from influenzal pneumonia. *Haushalter and Viller*, i. A-66.

Three cases in which otitis media complicated a case of the catarrhal form. *F. P. Ball*, i. A-66.

Cases of inflammation of the parotid gland as a complication. *Hobbs*, *Carslaw*, i. A-66.

Case in which pneumonia was followed by acute orchitis of metastatic origin. *Negel*, i. A-66.

TREATMENT. Favorable influence on general disease of injections of essence of turpentine to provoke superficial abscesses. *Fochier*, i. A-66.

Sterile pus obtained in a case treated as above. Fochier believed that it acted by localizing septic germs, but action probably different. Experiments showing that method appears to act by developing, at the point of the artificial abscess, a special antitoxic substance. *Pinna*, i. A-66, 67.

Twelve cases treated with serum of rabbits rendered artificially immune. In seven diminution in the height of temperature and in the frequency of pulse and respiration; patients made a good recovery. In eight patients injected with cultures deprived of toxicity by heat; results similar. In patients inoculated with serum of other patients ob-

tained immediately after crisis, temperature became lower, and frequently defervescence at once followed. Case arrested on fourth day after injections of serum of a vaccinated rabbit. *G. and F. Klemperer*, i. A-67.

Pyrexia does not yield in the same way as does that of typhoid fever. Best subdued by cold applied directly over affected lung as well as to the head, using ice-bags wrapped in towels. If fever fall to or near normal point and show a tendency to remain there, ice may be gradually removed. Main object to circumvent exudative process and hasten resolution in senile and latent pneumonia. Mortality of only 3.58 per cent. in 195 cases collected. Cold relieves pyrexia, strengthens pulse, tones up the heart, diminishes pain, alleviates dyspnœa. relieves stasis. *Mays*, i. A-67, 68.

Excellent effects of balneotherapy in infants at 77° or 68° F.; cold bath reduces temperature, restores lost tone, slows pulse and respiration. Antipyrin, quinine, etc., generally useless and may be dangerous. *Comby*, i. A-68.

Question whether process reasonable in young children, in whom disease generally pursues a favorable course. *Masse*, i. A-69.

Partisan of cold baths in pneumonia, combined with measures to sustain the heart digitalis in first stages, caffeine or sparteine later on. *Rendu*, i. A-69.

Water-baths or Priessnitz's wet cloths to prevent asphyxia, cyanosis, and carbon-dioxide poisoning. To avoid venous stasis, patient changed every hour, and not allowed to remain long on his back. Made to take four or five deep inspirations every half-hour. *Nothnagel*, i. A-69.

Ice-cradling recommended. *Fenwick*, i. A-69.

Four cases cured by $1\frac{1}{2}$ to $2\frac{1}{2}$ fluidrachms of infusion of digitalis daily. Did not feel warranted in employing enormous doses advised by Petrescu. *Lop*, i. A-70.

Digitalis most valuable agent in acute pneumonia when used in large doses with hydro-therapeutic measures. *Nægeli-Akerblom*, i. A-70.

First day, $\frac{1}{64}$ to $\frac{1}{32}$ grain crystallized digitaline; second day, $\frac{1}{64}$ grain; if necessary, same dose daily for a few more days. Considerable improvement observable on third day. *Franc*, i. A-70.

Digitoxine, $\frac{1}{252}$ grain, dissolved in smallest possible quantity of chloroform and alcohol, and $6\frac{1}{2}$ ounces of water. Taken in three doses six or eight hours apart. To prevent vomiting, no food or drink taken for one hour before and one hour after the dose, and cold-water compress over epigastrium. Patient to be carefully watched and remedy suspended when pulse becomes intermittent. *G. and J. Corin*, i. A-70.

Hydrochlorate of pilocarpine in influenzal pneumonia; 108 cases with 4 deaths. Daily doses of $\frac{7}{8}$ grain; in children, dose proportionally smaller. *Poulet*, i. A-71.

Pilocarpine used in five cases, followed by good results. *Glass*, i. A-71.

Muriate of pilocarpine to abort affection. *Stimpson*, i. A-71.

Efficacy of alcohol due to its action on the excito-motor nerve-apparatus of the heart and on the respiratory centre. Strychnine best given hypodermically into gluteal muscles in doses of $\frac{1}{60}$ grain. *Kidd*, i. A-71.

Use of strychnine as a respiratory and cardiac stimulant preferred to alcohol. *Craddock*, i. A-71.

Strychnine preferred to all other drugs. *Rone*, i. A-71.

Frequent subcutaneous injections of morphia, beginning with small doses; cold baths, regulated according to temperature. *Larrousse*, i. A-71.

Creasote almost a specific. Largely eliminated by the lungs and brought directly in contact with lesions. *Kerr*, i. A-71, 72.

Frictions with creasoted alcohol lower temperature by acting reflexly on nervous system. *Gaube*, i. A-72.

Experiments with nitrite of amyl showing that much larger doses can be given than are usually recommended; 60 to 100 drops on a handkerchief, given more than once, can be inhaled without accident. Good results in pneumonia. Fifteen drops inhaled in the recumbent position without effort; renewed every five minutes until fifty drops thus administered. (See text.) *Hayem*, i. A-72.

Chloride of methyl to calm localized pain, applied along course of nearest nerve, gives instant relief. *Marot*, i. A-72.

Internal administration of camphor with antipyrin valuable. *Ivanov*, i. A-72, 73.

Coal-tar series dangerous in pneumonia. *Theodore Fisher, A. H. Frere*, i. A-73.

Antipyrin, phenacetin, and antifebrin reduce temperature at the expense of cardiac energy; dangerous in large doses, in small doses often useless. *Holt*, i. A-73.

Striking benefit to be derived from oxygen as inhalation. *W. T. Baird*, v. A-117.

Experiments on animals showing that percentage of hæmoglobin in the blood can be largely increased by inhalation of pure oxygen. *G. J. Preston*, v. A-117.

Oxygen counteracts asphyxial state of tissues and destroys the ptomaines. *Romaro*, v. A-118.

Oxygen inhalation. No change noticed in the pulse- and respiration- rate, nor was the dyspnœa at all relieved. *J. W. Russell*, v. A-119.

PNEUMOTHORAX.

PATHOLOGY. Amount of red corpuscles increases during pneumothorax. *Lapique*, i. A-81.

PNEUMOTHORAX (continued).

Case following pneumonia with formation of enormous amount of fetid sputum. Both disappeared spontaneously after several days. *Schlesinger*, i. A-81.

Case of subphrenic double pneumothorax associated with generalized tubercular peritonitis. *Muselier*, i. A-81.

Case of interstitial pleurogenous pneumonia with seven foci of ulceration, one of which gave rise to fatal pneumothorax. *Paviot*, i. A-81.

Gas of experimental pneumothorax contains a considerable amount of CO_2 and a much smaller amount of oxygen than air. *Rodet and Nicolas*, i. A-81, 82.

Case of spontaneous development of gas in a pleuritic exudate, latter revealing a thick, plump, immobile bacillus, which gave rise to plentiful development of gas and was found pathogenic for guinea-pigs. *Levy*, i. A-82.

Certain, as yet undetermined, microbes, existence of which has been proven by experiment, are capable of producing gas within tissues. *Barjon*, iii. B-16, 17.

Thoracotomy affords relief only in exceptional instances. Wide costal resection the proper procedure. Simple aspiration with injection always dangerous. *Marchant*, iii. B-17, 18.

PYOPNEUMOTHORAX. Diagnosis of circumscribed pyopneumothorax at times extremely difficult. All obscure cases should be explored with an aspirating-needle. *Scott*, iii. B-18.

Case in which pus was mixed with air, had a fæcal odor, and contained numerous black points which gave the reaction of hæmin. *Laache*, iii. B-18, 19.

Case of subphrenic pyopneumothorax; diagnosis verified by autopsy. *Thue*, iii. B-19.

Case of old pyopneumothorax operated by Delorme's method. Warmly recommended. *Lardy*, iii. B-18, 20.

[I have verified by dissection of the cadaver that an important modification of Delorme's procedure is available for reaching the cavity of the chest. This consists of section in the axillary line—or farther back, if desirable—of the ribs covering the area for examination, and from this perpendicular incision cutting along the intercostal spaces anteriorly until the costal cartilages are reached. Then, lifting the flap upon this flexible, hinge-like attachment, the operator is able to explore the portion of the thorax thus exposed. Upon opening the left side of the thorax in this manner, by division posteriorly of the second, third, fourth, and fifth ribs and making an incision forward to the costal cartilages of the highest and lowest ribs, through the intercostal spaces, I was enabled to raise the flap without difficulty to a right angle with the sternum. This permits access to the upper division of the thoracic cavity and brings the left portion of the mediastinum under direct observation, without any undue tension upon any of the tissues. Instead of the complete section in front and partial division of ribs behind, as in the process of Delorme, there is only one vertical division of ribs in the axillary line which admits of suture afterward. J. McFADDEN GASTON, Assoc. Ed., iii. B-19, 20.]

Case in which pus migrated to lumbar region. Costo-diaphragmatic sinus the seat of a sort of infundibulum, lower extremity of which passed below the last rib, through the muscles of loins. *Galliard*, iii. B-20.

POLLAKIURIA AND POLYURIA.

PATHOLOGY. Four kinds of pollakiuria. The first affecting neurasthenic people, but in the majority due to some active cause, such as sensitiveness of urethra due, in turn, to spontaneous retention of urine. Diagnosis easy by exclusion. Tonics and topical measures. The second is accompanied by polyuria in men over 50 years old; radically cured by regular catheterism. The third, due to slight urethral stenosis, discoverable by No. 17 olive sound; mechanical dilatation or internal urethrotomy. The fourth results from various pathological lesions, such as chronic prostatitis, etc. *Svensjon*, i. E-41, 42.

Two cases in brothers; mother also affected, but to a slighter degree, during pregnancies. Average quantity passed by each of brothers twenty-eight litres a day. Excess of chlorides. At necropsy of one, walls of fourth ventricle seat of small hæmorrhages outside the vagi nuclei; neuroglia hypertrophied, disappearance of the fibrillæ of the ventricular walls. *Marinesco*, i. E-42.

TREATMENT. In frequent micturition of nervous origin, progressive dilatation of bladder to utmost capacity by filling it with boric water and noting manometrical risings under influence of vesical contractions. *Janet*, i. E-42.

POTT'S DISEASE.

DIAGNOSIS. Pain, disability, sickness out of proportion to apparent degree of spinal disease. Onset alarming; progress more rapid than in tubercular caries; paralysis being an early symptom. Secondary disease soon appears, with rapid emaciation and marked cachexia. Whether due to syphilis or tuberculosis important to ascertain as regards prognosis and treatment. In tuberculosis evening rise in temperature likely; bacilli. In syphilis nocturnal pains. *Dillon Brown*, iii. G-8, 9.

Study of 84 cases. Family history of but little value in diagnosis, sexes about equally affected. Rigidity in every case; kyphosis

in 76. In 31 deformity in dorsal region, in 21 in dorso-lumbar region, in 19 in lumbar and in 5 in cervical region, 8 cases without deformity. Pain in 50 per cent., invariably felt at some point distant from seat of disease. *Woley*, iii. G-9.

TREATMENT. Sixty-six cases. Results in von Bergmann's clinic with Lorenz plaster bed particularly noticeable. Plaster jacket almost unavoidable. Taylor's spinal apparatus used in number of cases. *Beuthner*, iii. G-9.

Four cases of spondylitis of second cervical. In all, small swelling at back of neck on the right side. In each, chin directed toward right side; face looked downward, pressing closely in one case against clavicle and causing excoriation. Motions of head excessively painful. Treated by means of support,—pelvic belt with two upright backbars passing upward over shoulders, held in position by shoulder-straps and an apron. *R. H. Sayre*, iii. G-9, 10.

Hammock apparatus to apply plaster jacket while patient in recumbent position. Muscular rigidity overcome by this position alone; strong extension never required after muscular relaxation has been secured by comfortable reclining posture. *Sloan*, iii. G-11 to 13.

[Personal experience in applying plaster jackets in the horizontal position has led us to abandon it in favor of vertical suspension, except in very exceptional cases. Lewis A. Sayre and Reginald H. Sayre, Assoc. Eds., iii. G-13.]

Suspension not detrimental in cases with compensated cardiac lesions; others are to be carefully watched. *Joachimsthal*, iii. G-13.

[We have reported cases of scoliosis in which a rapid and irregular heat became slower and more regular during suspension. Lewis A. Sayre and Reginald H. Sayre, Assoc. Eds., iii. G-13.]

Quick method of removing plaster dressings. When bandage is applied a string covered by a strip of parchment-paper is passed under. When the dressing is to be removed the string serves to draw fine-wire saw beneath plaster. *Gigli*, iii. G-13.

In suspension in old caries, only physiological curves are obliterated; sharp kyphosis held too firmly by inflammatory adhesions to permit correction. Apparatus to put patient in comfortable position,—*i.e.*, to elevate ribs and cause backward bending of spine, thus producing certain degree of lordosis. Weight thus removed from diseased vertebræ to healthy transverse and articular processes. *Taylor*, iii. G-13, 14.

Physiological rest possible only in recumbent position during acute stage. When convalescent stage entered upon, upright position assumed; great danger; care needed. Apparatus by which trunk is sandwiched between two braces. *Schapps*, iii. G-14.

Aluminium corset as substitute for braces and corsets now worn, in cases requiring permanent bracing. *Phelps*, iii. G-14, 15.

If tuberculous focus can be eradicated from vertebræ, with every prospect of permanent result. Advanced cases, in which caseous mass exists, greatly benefited by laminectomy and direct treatment of diseased focus. Operation itself not difficult, unless grave respiratory trouble ensues. Does not interfere with future stability or mobility of spinal column. *Parkin*, iii. G-15, 16.

Excellent results in eighty cases by injection of camphorated naphthol into unopened abscess. Large trocar must be used; puncture made at a point over which skin not thinned, and sac washed out with boric-acid solution; when fluid returns clear, 1 to 2 ounces camphorated naphthol injected and orifice closed with collodion. Several injections are usually required. Painless. *Ménard*, iii. G-16.

Out of 126 cases, 94 treated by immobilization, with or without injections, and 32 only operated on, by simple drainage or resection and curetting. Good results in all but 1. *Vincent*, iii. G-16.

Surgical intervention inadvisable, best results obtained with iodoform injections. *Kirmisson*, iii. G-16.

Case in which the abscess opened into the pleural cavity and lung and was followed by vomicæ. *Hergenberg*, iii. G-16.

PARALYSIS IN POTT'S DISEASE. Sudden paraplegia in about 2 per cent. of total paraplegias caused by vertebral caries. Still more infrequent causes are bursting of abscess or hæmorrhage into canal, and displacement of sequestra with pressure upon the cord. Most usual cause of paraplegia pressure by granulation-tissue. Nearly all cases recover if kept fixed in recumbent position for sufficiently long time. *Thorburn*, iii. G-17.

Surgical intervention, as a rule, not indicated unless there be immediate danger to life. After successful operations recovery takes place so slowly that such intervention is even questionable. *Brissaud*, iii. G-17.

Most prominent orthopædists in favor of treatment by rest and immobilization. Personal experience in 20 cases,—19 cured or recovering, 1 death by opening of abscess into bladder. Opening of spinal canal shows mortality of at least 50 per cent. *Calot and Pierre*, iii. G-17, 18.

Case showing curability by simple measures notwithstanding numerous complications, including erysipelas. *Loison*, iii. G-18.

Indications for operation: Steady increase in symptoms in spite of favorable treatment,

POTT'S DISEASE (continued).
and when they directly threaten life. In caries of arches if severe pain, patient being exhausted. *Thorburn*, iii. G-18.

Pressure of tuberculous abscess the cause of paraplegia. Cases in which paraplegia had existed a long time, relieved and return of sensation in a few hours by opening and drawing of abscesses. *Ménard*, iii. G-18, 19.

Transversectomy followed by momentary return of sensation and motor power in a case, paraplegia returning and proving fatal in spite of a laminectomy. At post-mortem last cervical and first dorsal almost gone, former twisted and pushed into the cord, causing paralysis. *Deschamps*, iii. G-19.

PREGNANCY. (See also ABORTION.)

DIAGNOSIS OF PREGNANCY. Umbilical depression increased during the first two months of pregnancy; uterus sinks into pelvis, drawing down bladder by the urachus. *R. Evans*, ii. G-3, 4.

Exact estimation of beginning of pregnancy not possible, as ovulation occurs independently of menstruation; form and consistence of uterus more reliable. Enlarged evenly, anteflexion increased, vaginal portion drawn up, vagina elongated, anterior vaginal wall tenser. Hegar's sign may be recognized in 30 per cent. of cases; paper based upon 200 cases of pregnancy from third to twelfth week. *Landau*, ii. G-4.

Diagnosis is possible ninety-nine times out of a hundred by bimanual palpation between the sixth and twelfth weeks,—*i.e.*, Hegar's sign, of which little or nothing is said in text-books. It concerns the relation of cervix to body of uterus. When growing ovum present, the body and fundus develop rapidly, while the cervix grows slowly. By six weeks body spheroidal and juts out from the comparatively small cylindrical cervix prominently in every direction, and is soft, semifluctuating to the touch when palpated bimanually. Only two conditions cause this sign,—hæmatometra and intra-mural fibroid. *Noble*, ii. G-4.

Pregnancy mistaken for an ovarian cyst. Error in diagnosis due to adhesion of the tumor to the abdominal wall and to fluctuation of the accompanying hydramnion. *Reverdin*, ii. G-5, 6.

Abdominal section performed by mistake. *Loviot*, ii. G-6.

DISEASES COMPLICATING PREGNANCY.

HEART DISORDERS. Cardiac lesions as complication of pregnancy do not receive sufficient attention in text-books. When cardiac symptoms, slight favorable issue, as a rule; if cardiac symptoms marked, 35 per cent. of cases fatal. Emptying of uterus before condition becomes desperate justifiable. *George Sears*, ii. G-11.

Study of the influence of mitral stenosis in 62 women. Twenty-three died, either in course of pregnancy, in parturition, or within three weeks after delivery. Most fatal period just after delivery; 14 of the 23 died between sixteen and twenty-two days after birth of child; 2 in labor; 7 before parturition set in. Marriage and, still more, pregnancy undesirable for women with heart disease; if pregnancy occur, rest and avoidance of all excitement. During labor, chloroform when pains too severe, and to arrest efforts of patient to expedite delivery. *Herman B. Allyn*, ii. G-12.

NERVOUS DISORDERS. In eight cases of eclampsia, diffuse cerebral inflammation; in nerve-cells white, cloudy, fatty, vascular degeneration of protoplasm and nuclei of nerve-cells; greatest changes in nerve-cells found in the motor areas; hæmorrhagic spots of necrosis in brain-tissue. *Jagodenski*, ii. G-17, 18.

Instance of convulsions of pregnancy in which every fit was regularly preceded by a transitory amaurosis and œdema of the face, of short duration. Healthy child delivered; recovery of mother. *Rabczewsky*, ii. G-18.

RENAL DISEASE. In ophthalmoscopical examination retina dull, papillary margins irregular, papillæ themselves frequently swollen, veins dilated and tortuous; arteries contracted, showing distinct, whitish borders. Disturbance of sight comes on slowly, mostly in primiparæ, in second half of pregnancy. Sight entirely goes, to return gradually, spontaneously, or when pregnancy terminated. Once the affection occurs, relapses readily seen in later pregnancies. Even with moderate impairment of sight induction of labor should be considered. *P. Silex*, ii. G-15, 16.

In about half cases of pregnancy, healthy women, trifling amount of albuminuria to be detected. As a rule, this involves no symptoms. *Fratenroth*, ii. G-16, 17.

Nephritis does not end in chronic nephritis; recurred but once in eight pregnancies. Induction of labor by vaginal douches simple; in one case child saved and reared. *Gossmann*, ii. G-17.

TUMORS.

FIBROMA. [I have often observed pregnancies among women afflicted with fibroma; fecundation itself never hindered by their presence. I believe that they contribute to prolong uterine life; fibromata more likely to promote fertility than to cause sterility. A. LUTAUD, Assoc. Ed., ii. G-7, 8.]

Case with a large fibroid tumor who became twice pregnant. At first labor fœtus dead, but in the second a living child born. *Rémy*, ii. G-8.

Myofibromata complicating pregnancy do not involve any particular danger for the

patient, either from hæmorrhage or interruption of gestation. *Hofmeier*, ii. G-8.

Four cases of pregnancy complicated by fibroid tumors; pregnancy allowed to progress without interruption unless indications for action. None arose; each case successfully delivered; only complication, adherent placenta with hæmorrhage in two cases; tumors decreased rapidly after delivery. Cæsarian section or Porro's operation gives far better results than myomectomy during pregnancy. *Rosenberg*, ii. G-8.

Case of pregnant multigravida who, on abdominal incision, was found to have a calcified myoma of anterior uterine wall. Capsule incised, tumor removed, cavity tamponed with iodoform gauze; perfect convalescence and delivery. *Leopold*, ii. G-8, 9.

MALIGNANT GROWTHS. When a pregnant woman is affected with cancer of the uterus, if latter operable, uterus and appendages should be removed at once, no matter what the date of the pregnancy may be. *Hernandez*, ii. G-9.

PLACENTAL HYDATIDS. Case of second pregnancy in sixth month of which a flow of water, mucus, and blood, followed by labor. Uterus almost filled with friable placenta, pores of which contained hydatids. Fœtus dead and crushed. *A. Bethune*, ii. G-10.

OVARIAN TUMOR. Successful removal during the sixth month of pregnancy without interrupting latter. *Macpherson*, ii. G-10, 11.

FERTILITY. Pregnancy often occurs at end of menstruating life. *Parvin*, ii. G-1.

[I have observed this fact many times, and agree with Parvin when he says that we must bear in mind that the end of menstruating life is usually attended by the return of sexual activity. A. Lutaud, Assoc. Ed., ii. G-1.]

Law recently enacted in the province of Quebec: One hundred acres of government land allotted to each family showing at least twelve living children. Families numbering twenty children by no means rare; one showing thirty-six living legitimate children. *Union Médicale du Canada*, ii. G-1.

PROTRACTED PREGNANCY AND PREMATURE BIRTH. Case in which fifth pregnancy terminated 302 days after last menstruation. *A. Stahl*, ii. G-6.

Case of a child, now 2 years old, born in the sixth month of pregnancy. Successful growth of a child born at six and a half months and weighing 1040 grammes. *Villemin*, ii. G-6, 7.

STERILITY. Eighty cases examined while spermatozoa in the genital organs after sexual connection. Semen always remained in the *cul-de-sac;* spermatozoa alone entering womb through a mucous plug acting as filter; spermatozoa in the womb one hour after sexual intercourse. Sterility due to the male in 13 surely and 22 probably, out of 80 cases. *Chouvarsky*, ii. G-2.

[Although the proportion given above is very great, it is nevertheless true that sterility is often due to the male; I found absence of spermatozoa in 12 per cent. of my cases. A. Lutaud, Assoc. Ed., ii. G-2.]

TREATMENT. Endometritis the one great cause of sterility, and of flexions and oöphoritis. Treatment of these affections successful. Chances greatly improved by preliminary curetting; weekly or biweekly applications of iodized phenol to canal, supplemented by tampon of glycerin and alum or of boric-acid solution. *Bell*, ii. G-2, 3.

Death from peritonitis after treatment against sterility. *Blake*, ii. G-3.

Ordinary baths, partial or complete; douches, compresses, act on pelvic inflammatory deposits. *Kisch*, ii. G-3.

Carbon-dioxide baths, lower part of body immersed, useful. Mud-baths may be combined with these. *Gustav Loimann*, ii. G-3.

PROSTATE GLAND.

ABSCESS. If retention of urine, antiphlogistic treatment. If failure, incision through rectum, through perineum, or a prerectal dissection, prostate being laid open. Abscess opened through rectum eighteen times. *Casper*, iii. E-57.

Rectal incision. Speculum introduced, incision made. After washing out cavity, latter packed with iodoform gauze. *Routier*, iii. E-57.

HYPERTROPHY.

CASTRATION. Results of double castration in 111 cases showing that in approximately 87.2 per cent. rapid atrophy follows operation. Disappearance or great lessening in degree of long-standing cystitis in 52 per cent. More or less return of vesical contractility in 66 per cent.; amelioration of most troublesome symptoms almost 83 per cent. Return of local conditions not far from normal (46.4 per cent.) may be expected. *White*, iii. E-44 to 48.

Cases in which castration undertaken for prostatic hypertrophy. *Kummell*, *Ramm*, *Koren*, *Walker*, *Hayden*, *Moullin*, *Haynes*, *Lütken*, *Watson*, *Gaven*, *Thayer*, *Ricketts*, *Thomas*, *Levings*, *Finney*, *Stretton*, *Faulds*, iii. E-48, 49.

[Great majority of writers favorable to operation. E. Fuller, Assoc. Ed., iii. E-49.]

Marked diminution in size of prostate, without change in frequency of urination. Pyuria, bacteriuria, and pyelonephritis remain practically the same. *Bryson*, iii. E-49.

Of six cases operated, five deaths. Four affected mentally, developing childishness, aberration, and mania. In one who sur-

PROSTATE GLAND (continued).
vived, no improvement in vesical or prostatic conditions thirty days after operation. *Faulds*, iii. E-50.

Case in which marked mental symptoms followed castration in aged individual. *Cabot*, iii. E-50.

Fatal case in which mental symptoms developed together with great vesical tenesmus. Still operation not condemned. Best to withhold judgment, and not to operate on a man who is in a condition of urgency, but in periods of quiescence or decline. *Keyes*, iii. E-50.

Enough testimony advanced to warrant belief that there are cases which will be benefited, but conservatism imperative until good and sufficient reasons for operation in every case furnished. *Bangs*, iii. E-50, 51.

Great improvement in both mental and general condition. *Post*, iii. E-51.

Case reported as cured by castration may have been wrongfully diagnosed. Photographs of dissections by Fuller, showing how distended vesicles might simulate enlargement of prostate. This condition not infrequently observed. *Allen*, iii. E-51.

Seminal vesiculitis may at times be mistaken for prostatic hypertrophy. Case in which such error was made. *Belfield*, iii. E-51, 52.

Castration for prostatic enlargement being recklessly done. *Belfield*, iii. E-52.

Equally good results obtainable by dilatation of prostatic urethra and perineal drainage in cases of advanced prostatic hypertrophy requiring operation, prostatectomy preferred. *Alexander*, iii. E-52.

Experiments suggesting that after unilateral castration atrophy of corresponding half of prostate might occur. *White*, iii. E-52.

Cases of unilateral castration in which corresponding atrophy, as judged by rectal feel, did not apparently take place. Shrinkage does take place, however, after double castration. *Fenwick*, iii. E-52.

Ligation of spermatic cords to cause atrophy of prostate. *Mears*, iii. E-52.

Experiments tending to show that atrophy follows bilateral excision of vas deferens. *Pavone*, iii. E-52.

Obstruction to urination consequent on prostatic hypertrophy relieved by plugging rectum with a tampon, thus obliterating post-prostatic vesical *cul-de-sac*. *Manasse*, iii. E-52.

Observations regarding the effects of castration upon prostate and sexual apparatus largely confirmatory of conclusions of White and Ramm. Atrophy of testicle not to be expected after ligation or division of its vas deferens provided blood-vessels and nerves supplying organ are not disturbed. *J. Griffiths*, iii. E-25.

Fact that in 1891 author reported that atrophy of a testicle did not follow division or partial removal of corresponding cord. *W. H. Bennett*, iii. E-26.

[For several years past a number of leading surgeons have advocated removal of those structures in tubercular conditions of epididymis and cord requiring operation, leaving testicle proper undisturbed. KEYES AND FULLER, Assoc. Eds., iii. E-26.]

PROSTATECTOMY. Rectal bag of Peterson used in 27 cases. Mortality, 16.6 per cent. Radical cure in 13 cases. *Bryson*, iii. E-53.

Six successful cases of prostatectomy by special procedure. *Fuller*, iii. E-53 to 56.

Intra-vesical prostatic growth not always cause of obstruction requiring operative relief. Median portion plays important part by forming a valve in majority of cases. Lateral lobes are often important factors. Dittel's lateral prostatectomy viewed with favor. Best results obtained by suprapubic method combined with perineal drainage. *Woolsey*, iii. E-56.

Three successful cases of perineal prostatectomy; one complicated by encysted calculus, necessitating suprapubic operation. *Suteliffe*, iii. E-56.

PRURITUS.

TREATMENT. Antipyrin an excellent remedy for itching in cases of prurigo, lichen urticans, urticaria, eczema, etc. *Valerius Idelson*, iv. A-47.

Antipyrin, 15 grains at bed-time. *Arnstein*, iv. A-47.

In pruritus ani cotton compresses dipped in a concentrated solution of chloride of lime passed into the anus and retained a few minutes. External parts bathed with same solution and allowed to dry. Strength of solution graduated to suit tolerance of patient. Burning sensation, followed by relief. *Berger*, iv. A-47, 48.

PSORIASIS.

PATHOLOGY. Psoriasis not a local disease. Depends upon a general condition which produces the eruption repeatedly. It is closely associated with gout and faulty metabolism. *L. D. Bulkley*, iv. A-48.

Case of psoriasis of the nails associated with end-joint rheumatism. *Stephen Mackenzie*, iv. A-48.

Case of psoriasis in a patient 2 years and 5 months old. *Rambo*, iv. A-48.

Case in a child of 8 years. *Sherwell*, iv. A-48.

Psoriasis a rare disease in young children. *Morton*, iv. A-48.

TREATMENT. Thirteen cases in which heavy doses of iodide of potassium tried. Four cases unquestionably cured; rest benefited. Chrysarobin and anthrarobin lead to a rapid cure. *Haslund*, iv. A-48.

Cases successfully treated by thyroid ex-

tract. *Charles Forbes, Albert Wilson, H. R. Preece*, iv. A-48.

Thyroid treatment tried in eleven cases. Not a specific for psoriasis. *G. Thibierge*, iv. A-48, 49.

Out of 24 cases, 11 were cured and 7 improved by thyroid feeding. *Zum Busch*, v. A-16.

On the whole, use of thyroid tabloids has been disappointing; nevertheless, great improvement noted in certain cases. Cannot compete with arsenic. *Hutchinson*, iv. A-49.

In some cases arsenic not only useless, but injurious. Thyroid treatment has a limited sphere of usefulness; unsuited for elderly patients with weak hearts. Salicin, salicylates, and their derivatives yield striking and conclusive results. *Radcliffe-Crocker*, iv. A-49.

Five-minim doses of oil of copaiba yield excellent results. *Cantrell*, iv. A-49.

Currents of high tension and of high frequency recommended. *D'Arsonval*, v. B-1.

PUERPERAL ECLAMPSIA.

In 5000 labors there were 50 cases of eclampsia, 42 of which in primiparæ. Twelve mothers died,—10 from eclampsia, 1 nephritis, and 1 from sepsis. *Geuer*, ii. H-41, 42.

In simple pregnancies frequency of eclampsia 1 in 350, while in twin-pregnancies 1 in 15.5. *Clement*. ii. H-42.

Maternal mortality in eclampsia, 30 per cent.; fœtal mortality, 46.6 per cent. *Tarnier*, ii. H-42.

PATHOLOGY. Corpulent women more subject to eclampsia than others; mechanical pressure from growing uterus embarrasses functions of kidneys. *D. G. Simmons*, ii. H-42.

Eclampsia is the result of a complex irritant poison produced not only by failure of excretion by kidneys, but by failure in the action of the liver, the skin, the lungs, the intestines. *Ed. P. Davis*, ii. H-42.

Renal disease not the sole cause of puerperal eclampsia. Convulsions may occur in absence of albumin in the urine, and are comparatively rare in subjects of chronic Bright's disease. *John Williams*, ii. H-42.

A death from eclampsia found postmortem to have been caused by a parametric stricture of one ureter. Experiments showing (1) that retention of urine aided by infection of the blood can easily cause a partial or total parenchymatous nephritis; (2) that a large number of micro-organisms, when present in the parenchyma of the kidney, can also produce a parenchymatous nephritis. *A. Favre*, ii. H-42, 43.

Experimental study showing that body of pregnant woman, especially at end of pregnancy, contains an abundance of oxidized products—leucomaines—which are usually transformed and excreted by the liver and kidneys. When these organs are at fault, toxins remain and form basis of the disease. *Massein*, ii. H-43.

In eclamptic patients toxicity of the urine varies greatly from time to time. During convulsions toxicity of urine much less than at other times; however, it points clearly to the fact that retained toxins are the cause of eclampsia. *Ludwig and Savor*, ii. H-43.

Deaths of still-born infants of eclamptics and of children born of eclamptics who died soon after birth due to (1) hæmorrhagic and degenerative lesions of placenta, (2) histological alterations of spleen and kidneys resembling lesions found in organs of mother. *Cassaet and Chambrelent*, ii. H-43.

Case of puerperal eclampsia with subsequent tetanus due to biting of the tongue. *Abelin*, ii. H-43.

Case of pregnant primipara whose urine during several attacks of eclampsia had pronounced odor of sulphuretted hydrogen, considerable quantity of this gas also escaping through the catheter, which had to be used. Opalescent deposit of recent urine found to be formed by colonies of coli bacilli,—a bacteriuria without any clinical symptoms of inflammation of the urinary apparatus. Bladder probably infected through the catheter. *R. Savor*, i. E-76.

Case of eclampsia in mother and child, latter five hours after birth; recovery. The few cases of infantile eclampsia on record have ended fatally. *Woyer*, ii. H-43, 44.

TREATMENT. Results in 129 cases treated in Leipzig clinic,—49 treated on expectant plan and 80 actively on Dührssen's principal of emptying uterus as soon as possible. Mortality among former, 32.6 per cent.; in latter only 15 per cent. Treatment recommended: Immediate delivery by dilatation with elastic bags; when the cervix already involved, slight incisions into os. Ether or chloroform not contra-indicated as anæsthetic. Rigid asepsis. *Zweifel*, ii. H-44.

Two cases successfully treated by Dührssen's incisions and veratrum viride. *C. Clifford Barrows*, ii. H-44.

Veratrum viride very satisfactory; free diaphoresis induced. *W. G. Chandler*, ii. H-44.

Several cases of puerperal eclampsia treated successfully by large doses of Norwood's tincture of veratrum viride. Most of the patients treated unsuccessfully by other means, promptness with which convulsions arrested quite noticeable. *Thaddeus A. Reamy*, ii. H-44.

Other papers in praise of veratrum viride. *Harrison, C. M. Hyde, F. B. Hamilton*, ii. H-44.

Twenty-six cases with no deaths treated with veratrum viride by the mouth or subcutaneously until pulse brought below 60

PUERPERAL ECLAMPSIA (contd.). and convulsions controlled, after which the following mixture given: ℞ Acidi benzoici, 2 drachms; potass. bicarb., ½ ounce; spirit. æther. nit., 1 ounce; spirit. Mindereri, 2 ounces; syr. limonis, q. s. ad 6 ounces. M. Sig.: A teaspoonful every four hours. *R. C. Newton*, ii. H-44, 45.

For immediate control of spasms,—chloroform. *Love*, ii. H-45.

Subcutaneous injections of pilocarpine in four cases, ⅙ grain at a dose. In three cases convulsions stopped quickly and permanently. Contra-indicated in cases complicated by pulmonary trouble. Case lost suffered from pulmonary tuberculosis. *B. Grünberg*, ii. H-45.

PUERPERAL FEVER.

PATHOLOGY. There are intestinal symptoms, sometimes presenting themselves after parturition, which may give rise to symptoms clinically analogous to those of puerperal infection, but which, when recognized and treated in time, are almost always readily cured. *Budin*, ii. H-36.

Several cases of this kind demonstrating importance of not confounding above with true puerperal septicæmia. In former, coli bacillus passes from large intestine into uterus and annexes and causes uterine symptoms identical with those observed after direct infection of streptococcus. Generally produced in constipated women in whom the intestine is dilated, and usually occur some days after confinement. Hence, necessary to watch intestinal functions. If infection is produced, vagina should be carefully disinfected and injections of 1 to 1000 solution of corrosive sublimate given morning and evening. Small quantity of iodoform gauze introduced, and vulvar and perineal wounds carefully dressed. If relief not prompt, disinfecting and cleansing of uterine cavity necessary. *Michel Barbier*, ii. H-36.

Puerperal fever due to intoxication, not infection. Toxins develop in inflamed mucosa and pass into the blood; microbes destroyed by bactericidal action of latter. *Rapin*, ii. H-37.

Evil influence of sewer-gas emphasized. *A. Lapthorn Smith*, ii. H-37.

The following points may aid in establishing influence of drain-products: Rapid onset of symptoms; illness of child as well as mother; improvement following change of locality; absence of intense prostration; only partial cessation of milk and lochia; rareness of peritonitis; remissions of temperature; other cases of illness of a low type in same house or neighborhood. *M. Handfield Jones*, ii. H-37.

TREATMENT. Immunized mule-serum injected in a patient suffering from puerperal fever. Recovery. *Charrin and Roger*, ii. H-37, 38.

Case in which same procedure caused rapid amelioration of general condition. Recovery. *Josue and Hermary*, ii. H-38.

Case in which three injections of antistreptococcic serum sufficed. Three days later patient's mother contracted facial erysipelas. Patient again showed septicæmia, with severe rigor, temperature rising to 104° F. One injection of serum arrested progress; no relapse. *Jacquot*, ii. H-38.

Cases of puerperal fever and erysipelas treated by antistreptococcic serum. First case cured in forty-eight hours. Several others resulted in recovery. *Roger*, ii. H-38.

Two cases; first a complete success, second ending in death, temperature running an anomalous course. *Gaulard*, ii. H-38.

Hysterectomy should be performed (1) in cases that do not yield to uterine curetting and irrigation; (2) whenever peritonitis is present; (3) history of endometritis without uræmia present. *Bayard Holmes*, ii. H-38, 39.

Nineteen cases of hysterectomy during puerperal state performed by American operators; 12 died, 7 recovered. Sufficient success to warrant more general trial of abdominal hysterectomy. *Baldy*, ii. H-39.

Seven operations with four deaths. In septic infection after labor operation unadvisable, unless there is evidence of inflammation having extended to pelvic structures beyond the womb; fixation of the latter and development of inflammatory masses around it. *Barton C. Hirst*, ii. H-39.

Conditions indicating hysterectomy: (1) suppurative inflammations of the uterus; (2) tubal and ovarian abscesses; (3) abscesses of the broad ligament; (4) rupture of the uterus. *W. Easterly Ashton*, ii. H-39.

Seven cases of puerperal sepsis showing no lymph in the peritoneum and with normal tubes, in which patients had died or would have died without operation. *Pryor*, ii. H-39.

Patient's powers already too severely taxed to withstand additional shock of this major operation. *A. F. Currier*, ii. H-39.

Curette strongly supported after long experience of irrigation of uterine cavity; six bad cases with only one death. Never has recourse to curette after labor, except when placental relics require removal. *Ferré*, ii. H-39.

Curettage in cases where a portion of placenta retained and has begun to undergo decomposition. *Demelin*, ii. H-40.

Fourteen cases by Auvard showing that curettage is the most certain means of rapidly obtaining a fall of temperature. Latter not immediate, however. *Perrin*, ii. H-40.

Probable that mucous membrane only imperfectly removed,—a fact which perhaps explains the tendency to the recurrence of pathological conditions. *L. M. Bossi*, ii. H-40.

Antiseptic treatment in midwifery would be seldom required if asepsis were more carefully attended to. The need of thorough flushing of the entire genital tract directly after labor shown by quantity of *débris* usually removed. *Alex. Duke*, ii. H-40.

When fever during puerperal state can only be attributed to infection of genital tract, a most careful examination necessary. If any ulceration, disinfection with sublimate solution first, then vulva and vagina painted with tincture of iodine. If temperature does not decrease, uterus also thoroughly disinfected and swabbed out with iodine. Fifty-two cases showing that treatment, if not unduly delayed after appearance of fever, arrests its development. *Ten Bokkel Huinink*, ii. H-40, 41.

Intra-uterine injections of iodine. If temperature does not fall, simple swabbing out of uterus, then curettage. Quinine, 15 grains in two doses, morning and evening, increasing, but not exceeding 30 grains in twenty-four hours. Cold ablutions, wet packs, cold baths. When temperature exceeds 101.4° F. no cold baths to be given. *Tarnier*, ii. H-41.

Three cases successfully treated by Fochier's method, ½ drachm of essence of turpentine injected into the thigh. Best to give one of 15 minims in the deltoid region and other of same quantity in the back of the neck. *Switalsky*, ii. H-41.

Plea in favor of manual examination of the interior of the uterus after labor. The aseptically clean hand involves no risk to the woman comparable to those to which she may become subjected if uterus not cleansed of all remnants. *Egbert H. Grandin*, ii. H-41.

PULSE.

BRADYCARDIA. Unknown changes in nervous endowment of heart primarily causal of both transient and persistent bradycardia. Blood-weight and muscular condition of the heart may be such as to prevent ready response which occurs under more normal circumstances. In 3578 cases examined as to pulse-rate, bradycardia habitual and normal in 6 cases. Rôle of nervous system in influencing pulse-rate shown by rhythm or irregularities in cases in which cardiac muscle healthy. *Morrison*, i. B-46.

Bradycardia is a secondary rôle of arterial hypertension in combination with generalized arterial sclerosis. Bulbar anæmia may frequently be at fault. *Hirtz and P. E. Lévy*, i. B-46.

Case of permanent slow pulse with Cheyne-Stokes respiration and epileptiform attacks; slow pulse due to excitation of bulb by uræmic toxic substances. *Rémond*, i. B-46.

Case of bradycardia evidently due to simple constipation and absorption of poisonous products from intestinal tract. *M. M. Bowlan*, i. B-46, 47.

Case in which cardiac contractions fell to fourteen and even eight per minute. Sometimes heart entirely arrested for thirty seconds. *Boulioubach*, i. B-47.

Case in which pulse persisted at the rate of from thirty to forty during several months. Marked calcareous degeneration of coronary artery found at autopsy. *Claybaugh*, i. B-47.

DICROTISM. Generally admitted that dicrotism indicative of weak tension, but opinions quite contradictory. Whenever hand lowered, dicrotism augmented in intensity and duration; when arm raised, dicrotism diminishes and only appears on tracing near summit of pulsation. *Binet*, i. B-43.

SPURIOUS TENSION. Test for true spurious pulse-tension. Forefinger firmly applied to radial pulse with tip toward subject's elbow, no pulsation perceived by finger-tip below the nail. Position of finger then reversed,—tip toward palm,—heavy pressure being avoided. Beat found to have changed sides. *Wm. Ewart*, i. B-43, 44.

TACHYCARDIA. Gastric tachycardia not due to compression of vagus, but to absorption of ptomaines produced in the dilated stomach. *G. Laurenti*, i. B-44.

Tachycardia at menopause due to heart-fatigue. *Baldwin*, i. B-44.

Cases with considerable acceleration, but not highest, may entail some dilatation of the heart. Cases with 200 and over in which acute dilatation was the initial event. *Martius*, i. B-45.

TREATMENT. Case characterized by periodicity and rheumatic basis. Prompt action of quinine, 3 grains hourly; bromides also appeared to have been of service. *Häusler*, i. B-45.

Application of ice-bag to præcordial region produces an increase of systolic force, increase of blood-pressure, and diminution of cardiac pulsations. *Isnel*, i. B-45.

In tachycardia of menopause, solution of nitrite of amyl 5 minims to the ounce of water, a teaspoonful every fifteen minutes until relieved. *Baldwin*, i. B-45.

Large doses of digitalis,—11½ grains of the powder or 5 or 6 granules of digitaline. Bromide of potassium in daily doses of 1¼ drachms also. *H. Desplats*, i. B-45.

PURPURA HÆMORRHAGICA.

ETIOLOGY AND PATHOLOGY. Variety in which blood presents following char-

PURPURA HÆMORRHAGICA (continued).

acteristics: 1. Absence of any appreciable anatomical alteration of red blood-corpuscles. 2. Considerable decrease in the number of hæmatoblasts. 3. No constant alteration in the white blood-corpuscles. 4. Coagulability of normal blood. Reticulum either invisible or formed of fibrillæ exaggerated in size. 5. Absence of transudation of serum coinciding with feeble contractility of clot. *Hayem*, iv. A-49.

Fifty-three cases among a total of 90,556 cases of disease. Exceptionally accompanied by fever, usually without danger; sometimes death occurs through severe anæmia, cerebral hæmorrhages. *Grosz*, iv. A-49, 50.

Case of purpuric eruption ending in gangrene, apparently caused by sodium salicylate. *Shepherd*, iv. A-50.

Case simulating leucocythæmia and only determined by examination of blood. *Choschew*, i. K-28.

Case presenting several cutaneous hæmorrhages, although running a mild course; another with mild external symptoms rapidly ending in death. *Schiperowitsch*, i. K-28.

TREATMENT. Bone-marrow, daily doses of 1½ to 3 ounces, either raw or in sandwiches. *T. K. Alexeiew*, v. A-20.

PYONEPHROSIS. See KIDNEYS, DISEASES OF.

QUASSIA POISONING.

Fatal case from a decoction of two ounces of quassia injected into the rectum of a child for seat-worms. *Ferdinand Venn*, v. A-127.

Only case on record of poisoning by this drug, though active principle a poison to frogs. *H. C. Wood*, v. A-127.

QUININE POISONING.

Remarkable case of poisoning; dose taken about 5 drachms. Surface cold and blanched; temperature 95° F.; breathing nearly imperceptible, shallow and slow; pulse, 45, thin and small. Pupils considerably dilated; no response to light. Improvement next day; slight deafness and total blindness. Ophthalmoscope showed blur or haze over retinal field with congestion concentrated in macula. One week later vessels contracted; optic discs distinctly pale. Fourth and fifth month, distinct improvement. Color-blindness marked from the first, red and yellow being best distinguished. Vision remained defective. *A. E. Roberts*, v. D-20, 21.

RABIES. See HYDROPHOBIA.

RACHITIS.

ETIOLOGY. Setting aside syphilis, health of father little or no obvious effect in causation in offspring. Frequency of occurrence of rachitis in newborn exaggerated owing to inclusion of cases of other forms of bone disease. But there are most important antepartum causes. Antepartum causes: Ill health, malnutrition, or disease of the mother during pregnancy of great importance. Want of fresh air and exercise during pregnancy. Numerous and rapid pregnancies. Multiple pregnancy. Age of mother at birth of child. Lactation during pregnancy very important, often overlooked factor. Heredity. Syphilis predisposing, but not universal cause. Post-partum factors: Deficient milk-supply. Mother's health during lactation; concurrent illness, overwork, worry. Menstruation cause of rachitis. Pregnancy during lactation not a very uncommon factor. Too prolonged lactation well-recognized cause. *Garrod and Fletcher*, iii. G-1 to 3.

Personal observations in over 3000 children in St. Petersburg, showing that working-classes furnish greatest number of cases. *Joukownski*, iii. G-4.

Sixty per cent. of children under 3 years found to suffer from rachitis in one Russian village. Children born in autumn most predisposed. Excessive labor performed by mother increases gravity of rachitis in children. *Bistvow*, iii. G-4.

Attempt to show that disease among Italians in the United States due to effect of cold, damp, northern climate upon offspring of a race developed in warm, dry air. *Snow*, iii. G-4.

Case of cretinism symptoms of which pointed to rachitis as origin. Marked improvement under extract of sheep's thyroid in two such cases. *Friend*, iii. G-4.

Case of congenital rachitis. Possible etiological factor a mental shock received by mother during pregnancy. *Mason*, iii. G-4.

Case of congenital rachitis; parents young; well formed, healthy; other children in family also. No syphilis. Numerous fractures present. *Townsend*, iii. G-4, 5.

PATHOLOGY. Histologically fœtal rachitis differs much from true rachitis. Zone of ossification of cartilage but slightly vascular; in true rachitis it is exceedingly vascular. *Salvetti*, iii. G-5.

Conditions for precipitation of lime-salts in normal-growing bone: (1) presence of fully-developed cartilage-cells; (2) presence of carbon dioxide in tissue of cartilage in fixed proportions. Rachitis a chronic carbon-dioxide poisoning. *Wachsmuth*, iii. G-5.

Magnesium, 0.009 to 0.015 gramme per quart of urine, in several cases. May partly replace lime-salts. *Oechsner de Coninck*, iii. G-5.

Rachitis a contagious disease. In certain years number larger. Epidemic among young swine, bones showing existence of characteristic changes. *Puech*, iii. G-5, 6.

Rachitis the effect of ordinary pyogenic organisms upon osseous and nervous systems. Produced by experimental injection of pyogens into bones and epiphyseal cartilages of young rabbits. *Mircoli*, iii. G-6.

Chronic infective processes frequently localized in bones in early age. Nothing in clinical picture of rachitis against view of its being an infective disease. *Hagenbach-Burckhardt*, iii. G-6.

Hæmorrhagic conditions in scurvy rachitis due to an exaggeration of the anæmia always present in severe rachitis. *Ashby*, iii. G-6.

DIAGNOSIS. Pain and tenderness in the thorax as early symptoms of rachitis. *Hagenbach-Burckhardt*, iii. G-6, 7.

When costal lesions appear early, subject frequently more developed on one side than on the other; less diseased side develops normally and sternal obliquity induced. *Mayet*, iii. G-6.

Rachitic deformity of chest, consisting in very marked depression of lower portion of sternum in the median line. *Townsend*, iii. G-6.

TREATMENT. Number of cases in which spontaneous recovery of rachitic curvatures took place. Seems to depend largely upon rate of rapidity of general growth. *Veit*, iii. G-6.

Greater number of all cases undergo spontaneous cure. Process of straightening lasts usually two to four years. Chief aim in treatment to improve general health. Orthopædic treatment not necessary. Osteotomy indicated only when curvatures persist after sixth year. *Kampe*, iii G-6, 7.

[These statements are at variance with results as observed in the United States. Children with rachitis and curved legs grow worse if allowed to work on their flexible bones. When the bones are soft they should be bent straight and kept so by plaster-of-Paris splints or other apparatus, and a mode of life and diet instituted that will check the progress of the rachitis. Lewis A. Sayre and Reginald H. Sayre, Assoc. Eds., iii. G-8.]

One of best means to prevent deformities is avoidance of injurious positions in earliest stage of rachitis. Each case should be studied from its own stand-point. Medicinal treatment should be varied from time to time. Proper feeding, changes of air, general hygiene. *Ketch*, iii. G-8.

Treatment of four children by ingestion of thyroid gland gave no result. *Knöpfelmacher*, v. A-17.

RAYNAUD'S DISEASE.

PATHOLOGY. Case in which disease, instead of tending toward gangrene, in direction of dermic sclerosis. *Chauffard*, ii. C-45.

Two forms of symmetrical gangrene which should not be confused with Raynaud's disease. Case with loss of tips of fingers, toes, nose, and ears, in which, after elimination of diseased tissue, circulation completely re-established. Never so in Raynaud's disease. In another, skin adherent to subjacent tissues; scleroderma, not Raynaud's disease. *Hutchinson*, ii. C-45.

Raynaud's disease in insane. Pain the starting-point of persecution-delirium. Frequent in cases of stupor following acute mania. *Kiernan*, ii. C-45.

Only observed in acute mental states. *Clouston*, ii. C-45.

Symmetrical gangrene following erysipelas migrans. *Defrance*, ii. C-45.

Case of symmetrical gangrene of extremities following erysipelas. *Angelesco*, ii. C-46.

Certain variety of Raynaud's disease purely hysterical. *Levi*, ii. C-46.

Two female patients, suffering from hysteria, presenting symptoms analogous to those of Raynaud's disease; careful examination showed artificially-produced lesions. *Narath*, ii. C-46.

Child of 4½ years showing simultaneously insufficiency of pulmonary origin, chronic nephritis, and spontaneous gangrene of extremities of left hand. *Colson*, ii. C-46.

Idiopathic variety of Raynaud's disease clearly to be distinguished from symptomatic variety; former symmetrically affects upper extremities, gangrene circumscribed, panaris predominate. *Schlesinger*, ii. C-46.

Girl suffering from symmetrical gangrene in whom cold caused pneumonia and finally pulmonary gangrene. *Didier*, ii. C-46.

Case of "dead finger" of four and a half years' standing. *Stanley*, ii. C-46, 47.

In erythromelalgia attacks show themselves in summer especially; rise of temperature, sweating, and redness. Raynaud's disease observed principally in winter, lowering of temperature, feeling of cold. *De Renzi*, ii. C-47.

Starting-point of thrombosis a lesion of tunica externa or adventitia, with infiltration of perivascular conjunctive tissue. *Weiss*, ii. C-47.

TREATMENT. Child of 3, suffering from hereditary syphilis, whenever exposed to air showed local asphyxia of fingers. Spot of gangrene on ears. Specific treatment curative. *Krisowski*, ii. C-47.

Case in a child of 3. Symptoms disappeared under trinitrine. *Batton* ii. C-47.

RECTUM.

(See also Anal Fissure; Fistula in Ano; Hæmorrhoids.)

GONORRHŒA OF RECTUM. Ulceration of rectal mucous membrane deserves to be recognized as pathognomonic sign of anal gonorrhœa, but infection produces only in-

RECTUM (continued).
flammation ; ulceration is due to secondary cause. Only means of unerring distinction is microscopical examination. Pederasty most constant cause. *Neuberger and Borzeski*, iii. D-16.

Case in which endometritis, salpingitis, and oöphoritis supervened about a month after appearance of rectal discharge. Efficiency of ichthyol and glycerin tampons. *Lockwood*, iii. D-17.

Case in which rectal disease followed vaginal one about two weeks. *Hartmann*, iii. D-17.

Case without uro-genital blennorrhagia in child 6 years old. No attempt to verify diagnosis microscopically mentioned. *Emily Lewi*, iii. D-17.

IMPERFORATE RECTUM AND ANUS. Case of congenital imperforate anus in which bladder and bowel emptied through urethra. Child in fairly good health. *Hester*, iii. D-34.

Case of male infant with well-formed anus and anal *cul-de-sac*, but imperforation of septum between hypoblastic and epiblastic portions of rectum. *Owen*, iii. D-34.

TREATMENT. In rectal imperforation, although *cul-de-sac* situated somewhat high up, it is separated from superficial planes by fibrous sheath, which prevents it from being discovered. Ordinary incision of perineum, resection of coccyx and, if necessary, part of sacrum. *Commandeur*, iii. D-33.

In case of atresia ani urethralis rectum found narrowed and passing toward neck of bladder. Part of sigmoid flexure of normal size sutured to lips of abdominal incision and at once opened. Excellent results. *Scotson*, iii. D-33.

Dieffenbach-Nélaton method in vulvar ectopia of anus in women. Liberation of rectal ampulla from attachments, sutured to orifice created in perineum, abnormal recto-vulvar orifice left to close of itself. *Kirmisson*, iii. D-33, 34.

PROLAPSE OF RECTUM.

TREATMENT. In case of chronic intussusception of sigmoid flexure, invagination drawn down three inches outside of anus and operated by combined Van Buren method and elevation of gut through laparotomy wound. *Kelsey*, iii. D-17.

In certain cases of obstinate rectal prolapse formation of vicarious channel for fæcal discharge justifiable. Dangers much less than those of contact of fæcal discharge with operative surfaces. *Bryant*, iii. D-17, 18.

Case in which posterior rectopexy and perineorrhaphy were performed. Shortening of mucous membrane a useful adjuvant. After fixation of rectum by perineo-coccygeal sutures, reforming of perineum and advancement of anus indispensable in preventing recurrence. *Latouche*, iii. D-18.

Resection first performed by Auffret a commendable procedure. *Bogdanik, Mikuliez, Billroth, Nicoladoni, Nélaton, Perier, Krönlein, Hoffa*, iii. D-18.

Case in which incision made near spine of ilium; colon laid bare. Intestine drawn up until prolapse reduced; mesentery of colon then fixed to parietal peritoneum, intestine also by sutures through serous and muscular coats. Abdominal wound then closed. Patient up after seventh day. *Sarfert*, iii. D-19.

STRICTURE OF THE RECTUM.

ETIOLOGY. Sixty per cent. of cases of stricture of the rectum arise from syphilis, or the result of it. *J. McFadden Gaston*, iii. D-10.

Out of 99 personal cases, 49 malignant, 50 non-malignant. Thirty-three cases of the kind usually considered as syphilitic ; in only 6 syphilitic history ; in 1 only syphilis probably etiological factor. Constipation and fæcal impaction, operations, injury in child-birth, some of the every-day causes of so-called syphilitic stricture. *Kelsey*, iii. D-13.

Though in certain cases there appears to be a direct relationship between the local syphilitic lesion, in the majority of cases the stricture depends upon stenosing rectitis, syphilis, when present, occurring as a complication. *Hartmann and Toupet*, iii. D-10.

Case confirming syphilitic nature of simple or fibrous stricture, failure of specific treatment attributed to tardiness,—*i.e.*, when sclerosis has done its work. *Verneuil, Fournier*, iii. D-11.

Concurrence with Fournier's views as to syphilitic origin of so-called simple strictures. *Le Dentu*, iii. D-11.

TREATMENT. Fourteen resections for syphilitic stricture, twelve successful. In two cases operation not completed, ulcers being too high. Operation much more difficult than for carcinoma, but preferable to colotomy. *Schede*, iii. D-11.

Ten per cent. of cures by colotomy as against 20 per cent. by resection shown by literature of the subject. *Knecht*, iii. D-11.

Resection of the rectum but rarely indicated. *Lindner*, iii. D-11.

Perfect recovery in a woman after colostomy. After catheterization, disinfectant irrigation, and antisyphilitic treatment, closure of artificial anus. *Thiem*, iii. D-11, 12.

Belief in syphilitic nature of stricture of rectum following ulcerations. In one-half of personal cases anatomo-pathological lesions of syphilis found. Case hopeless if it is impossible to entirely extirpate the involved portions. Several cases of fatal peritonitis following violent dilatation. In inoperable cases, artificial anus. *Schuchardt*, iii. D-12.

Extensive study of annular strictures showing that a third or a fourth of cases called syphilitic are in reality tuberculous. Usually in patients from 15 to 35 years of age and primary; when secondary most frequently consecutive to adjacent tuberculosis. Extirpation by Kraske's method when stricture low or circumscribed, and artificial anus when high up. *Sourdille*, iii. D-12, 13.

Case of partial stricture of rectum, often giving rise to anal fistula, and due to transverse band, usually occupying posterior part of rectum, about three centimetres above anus, near upper sphincter. Above this rectum distended and ampulla enlarged. Probably congenital. Section with probe-pointed bistoury. *Tillaux*, iii. D-14.

Fourteen resections of rectum for stenosing ulcer; 5 ideal results, 7 fairly satisfactory ones. *Schede*, iii. D-14.

RECTAL STRICTURE IN WOMEN. In women anterior peritoneal tuberculosis may cause adhesions in lesser pelvis independent of any previous disease of appendages. Another frequent variety of perirectal occlusion is due to bands of appendages encroaching on rectum. *Hartmann*, iii. D-14, 15.

Case in which stricture probably originated by inflammation of Bartholinian gland working its way to rectum through a fistula, observed at operation. *Lonnberg*, iii. D-15.

Form of ulceration affecting women almost exclusively; attacks rectum 3 to 4 centimetres above anus; characteristic sharp edges. In old cases abundant proliferation of cicatricial tissue. In 7 out of 9 autopsies evidences of syphilis in other organs. Complete extirpation of diseased portion. *Fränkel*, iii. D-15.

TREATMENT. Method of excising strictures of rectum by way of vagina. Patient on her back, finger introduced into rectum; whole recto-vaginal septum cut through by transfixion from fourchette to anus. Sutures inserted into each of the vulvo-anal flaps. Transverse incision through intestine at lower border of stricture; rectum dissected out from below upward and whole length of stricture isolated. Second transverse incision through rectum at upper border of stricture and strictured portion removed. Upper part of rectum stitched to lower part, sphincter re-established by special points of suture, and operation finished like ordinary perineorrhaphy. *Campenon*, iii. D-15, 16.

TUMORS.

CANCER OF THE RECTUM.

TREATMENT. Modifications in Kraske's method have special advantages only in cases in which growth or stricture involves centre of rectum and ends of gut are to be reunited. *Bacon*, iii. D-1.

Value of Kraske's method greatly overestimated. Collert first to conceive idea of resecting coccyx as preliminary step. Carcinomata extending no farther than four inches above anus readily accessible by simple resection of coccyx. Sacral resection reserved for cases in which it is absolutely necessary to open peritoneal cavity. Simple median incision from tip of coccyx to margin of anus gives abundant room to deal with lower rectum; hence Kraske's operation to be limited to cases in which resection of coccyx does not furnish ample room. Severe hæmorrhage safely prevented by elevating pelvis. Following pathological conditions absolutely contra-indicate radical operations: Carcinoma extending beyond rectal tissue, carcinoma that has involved post-rectal lymphatic glands. *Senn*, iii. D-1 to 3.

Credit probably due to Lawson, who, in 1885, cut out a part of coccyx to reach the growth. *Lane*, iii. D-3, 4.

Kraske's operation only fitting in cases in which disease extends high up, and should only be employed when growth freely movable. *Allingham*, iii. D-4.

Extirpation of rectum inadvisable, since there can be no assurance that infiltrated tissues are not left behind. *Mathews*, iii. D-4.

When carcinomatous induration of rectal tissues is detected early there is encouragement to undertake operation; but after breaking down of neoplasm with infiltration no benefit derived from excision of parts involved. *J. McFadden Gaston*, iii. D-4.

As modified by Bergmann, procedure simple and affords large opening in lesser pelvis. *Koch*, iii. D-7.

Indicated in cases in which upper limit of growth cannot be defined from anus. *Paul*, iii. D-4.

Woman who two years before had been operated on for carcinoma. Perfectly well. *Hofmokl*, iii. D-4.

In women Kraske's operation not always necessary. Preliminary inguinal colotomy; incision from anus along margin of coccyx, peritoneum opened freely; rectum or sigmoid flexure above growth brought down and stitched to the skin, removing whole of rectum from that point downward. *Edwards*, iii. D-4.

Peritoneum accidentally opened in isolating upper part of intestine. Incision sutured; no complication. *Von Stubenrauch*, iii. D-4, 5.

Excision of the lower part of rectum combined with colostomy permits of protecting wound and more extensive intervention. Indicated when disease extensive, as in women. *Veliaminoff*, iii. D-8.

In women growth can readily be removed through vertical incision in middle line of posterior wall of vagina, carried backward in perineum as far as external sphincter ani. *Rehn*, iii. D-8.

Prognosis dependent upon location of

RECTUM (continued).
cancer. In 18 operations for high cancer, mortality 50 per cent. In 204 cases recorded are 12 operations for strictures, no deaths. Of 192 cases operated for cancer 58 deaths, but many of these old and would now be classed as inoperable. Twenty-seven cases recently operated by von Bergmann with only 1 death,—3 per cent. Average mortality by old method, 16 per cent. Advantages of sacral over old method are: Open field and reduction of hæmorrhage to a minimum. Rapidity. Formerly inoperable growths readily removed. Fæcal continence much greater than after colotomy. *Fenger*, iii. D-5.

Resections involving middle or lower part of upper portion of rectum give better after-results than those in which whole of lower portion excised. Desirable to preserve as much of lower portion as possible. When resection entirely above levator ani, excellent voluntary control. When performed upon proper principles, in appropriate cases, resection a useful procedure, without great primary mortality, often with excellent secondary functional results. *Dunn*, iii. D-5, 6.

Case of recurrence in cicatrix. No relation with the sacral bony cicatrix, latter covered with smooth fibrous tissue. *Körte*, iii. D-6.

Mortality of Kraske's operation to date, 30 per cent., with recurrences in 40 per cent. of recoveries, including inoperable cases. *Allison*, iii. D-6.

Kraske receiving much condemnation for what he had not recommended. Operation devised by him is to resect bowel and unite it by sutures, leaving sphincters intact. *McArthur*, iii. D-6.

Recovery rather expected without serious accident in clean and antiseptic Kraske operation, when upper end of gut well vitalized at point of section and brought out behind and stitched to skin. Operation, however, not the ideal one. After-condition not so good as after colotomy. *Kelsey*, iii. D-6, 7.

Kraske method modified by tying gut below and above before operation finished; not amputating it until after closure and dressing of wound, and sewing margin of bowel to edge of integument. *Zinke*, iii. D-7.

Cure of sacral anus after ablation of cancer. *Monprofit*, iii. D-6.

Combined Lisfranc-Kraske-Bardenheuer-Roux procedures in a case. Only inoperable cases those in which anterior wall involved, and where cancer diffuse. *Montaz*, iii. D-7.

Moulonguet's modification. Coccyx resected, as by Kraske, with patient on right side; incision stops short of anus three or four centimetres. Patient turned on the back, lower part of rectum dissected out and removed, avoiding sphincter ani. Divided end of intestine brought down within anal sphincter with forceps introduced in anus and by fingers introduced through posterior incision. Not applicable to very high cancers. *Routier*, iii. D-7, 8.

COLOTOMY. For colotomy inguinal region to be preferred. Advantages over lumbar operation: Smaller incision and lesser depth of wound; greater facility for exploration; better position for safe anæsthesia; comparative ease with which colon may be identified; greater facility for a good spur; convenience to patient of site; less dangerous. *Adler*, iii. D-8, 9.

Colotomy should never be performed without previous precise location of obstruction. Left lumbar colotomy only applicable to cases in which exact situation of stricture previously known. In all others preliminary laparotomy. *Deansley*, iii. D-9.

When retrorectal glands involved, permanent colotomy, amputation of diseased rectum, no attempt to restore continuity of canal. *Briddon*, iii. D-9.

Best place for artificial anus is left inguinal region. Out of forty colotomies only one death attributable to operation. Escape of many feet of small gut under dressings, and strangulation. Sudden and profuse discharge of large amount of serum from abdomen after colotomy a sign which should lead to immediate removal of dressings for inspection. *Kelsey*, iii. D-9, 10.

Case of sigmoid colotomy for cancer of rectum in a girl of 15 years. *Anderson*, iii. D-10.

MISCELLANEOUS TUMORS OF THE ANO-RECTAL REGION. Case of tubulo-dermoid growth of the post-nasal region in an infant. *Taylor*, iii. D-19.

Cases of sacro-coccygeal dermoids. *Markoe*, *McBurney*, *Abbe*, *Lange*, *Golding-Bird*, *Schulze*, iii. D-20.

Case of perirectal sarcoma. *Du Castel*, iii. D-20.

Case of very large villous papilloma of the rectum. *Paul*, iii. D-20.

Case of rectal adenoma. *Mouchet*, iii. D-20.

NEW INSTRUMENTS. New method of examining rectum and sigmoid flexure based on principles of anterior rhinoscopy. *Ramsay*, *Kelly*, iii. D-35, 36.

Improved conical rectum speculum. *Martin*, iii. D-37, 38.

Recto-sigmoid speculum. *Adams*, iii. D-38.

Dilatable rectal speculum. *Ryall*, iii. D-37.

RESECTIONS.

Resection of long bones for malignant tumor. Advantageous in that it permits early extirpation of the growth and is much

more acceptable to patient. Successful results. *Mikulicz*, iii. H-50.

Only warranted in cases of giant-cell sarcoma. In small-cell growths great danger of recurrence after resection. *König*, iii. H-50.

Results of resection of knee without drainage in 64 out of a total of 125 cases. The 64 all cured under single operative dressing with one exception, 59 healing without any suppuration. *Jules Boeckel*, iii. H-50, 51.

Resection of the thoracic cavity for chondroma involving the pericardium. Pericardium torn on its anterior surface, air whistling through. An attempt to suture unsuccessful. Heart temporarily covered with a sterilized compress and tumor removed, cutaneous flap turned down on the wound and sutured, pericardium being simply protected by strip of iodoform gauze. Patient collapsed, but revived. Left hospital in five weeks. *Schnitzler*, iii. H-52.

Partial resection of the sternum, clavicles, and first ribs for malignant growth. *E. Doyen*, iii. H-52.

Typical resection of elbow in ankylosis. Section of the bony or fibrous adhesions which prevent motion in the open wound, as fast as passive motion of the joint demonstrates the obstacles to be overcome. Articulations themselves perfect; not touched. In six cases, three successes. *J. Wolff*, iii. H-52, 53.

To correct an angular deformity of femur, removal of a V-shaped wedge, bringing extremities end to end, longitudinally. *Miel*, iii. H-53.

New operation for lesions of lower ends of tibia and fibula, astragalus, scaphoid, and cuboid, with integrity of calcaneum (*q.v.*). *Caselli*, iii. H-53.

Case of extensive ulceration of lower posterior part of the leg, with ankylosis of the ankle, in which ulcer cut out and tarsus resected, according to Wladimirow-Mikulicz. Site of the ulcer covered with the skin of the heel. *A. Niche*, iii. H-54.

RETINITIS. See Eye.

RETROFLEXION OF UTERUS. See Uterus, Diseases of.

RETROVERSION OF UTERUS. See Uterus, Diseases of.

RHEUMATISM.

ACUTE RHEUMATISM.

PATHOLOGY. A specific febrile disease possibly due to saprophytic organism, irregular in its presence,—*i.c.*, subject to epidemic periods of activity, one lasting from one to three years, the other from six to eight years. Periods in England: 1855 to '56, '59, '64-'65, '68-'71, '74-'76, '84-'85, '88, '93. *A. Newsholme*, i. J-1.

[These periods either in close proximity to or identical with notable periods of influenza. N. S. Davis, Assoc. Ed.]

Concordance with foregoing view at British Medical Association meeting. *Cheadle*, *Duckworth*, *Garrod*, *Mantle*, *Grainger Stewart*, *Handford*, *Stephen Mackenzie*, i. J-2.

Opposition to foregoing view, but without eliciting new facts. *Haig*, *Lees*, *Longhurst*, i. J-2.

Diplococcus observed differing from any yet found, and distinguishable from various forms of staphylococcus, streptococcus, and diplococcus of pneumonia; the probable cause of acute rheumatism and secondary complications. *Leyden*, i. J-3.

Staphylococcus albus repeatedly and streptococcus sometimes found in synovial, pericardial, and valvular liquids in acute and subacute form. *Birch-Hirschfeld*, *Bouchard*, *Charrin*, *Triboulet*, *Sahli*, *Sacaze*, i. J-3.

Organisms may gain access through injuries. *Sacaze*, i. J-3.

Synovial fluid of twelve cases free from bacteria unless joint disease due to sepsis or gonorrhœa. *Chvostek*, i. J-3.

Unilateral rheumatism of joints not so rare as generally supposed. *Heidenhain*, i. J-3.

Angina frequently precedes rheumatism; both caused by same microbic affection. *Buss*, i. J-3.

Relation of cause and effect by influenza and polyarticular rheumatism. *Weber*, *Constantin Paul*, i. J-3, 4.

Separate specific cause between influenza and polyarticular rheumatism. *Barbier*, *Ferrand*, i. J-4.

TREATMENT. Uncombined salicylic acid obtained from vegetable kingdom in large doses at short intervals, with free intestinal motion daily obtained with 2 to 5 grains of calomel previous evening. *Latham*, i. J-4.

Large doses—2 to 3 drachms—of salicylate of sodium daily until specific effect obtained. *Desplats*, i. J-4.

Small and divided doses, 15 grains every two hours, of salicylate of sodium, until relief obtained. *Huchard*, i. J-4.

If stomach rebel, rectum first freed of contents; then 1½ to 2 drachms of salicylate of sodium, 24 minims of tincture of opium, and 3¼ ounces of water at temperature of body employed as enema. *Erlanger*, i. J-4.

Salicylic acid in ointment. ℞ Salicylic acid, oil of turpentine, each 1¼ drachms; lanolin, vaselin, each 10 drachms. To be applied freely over affected joint. *Carricu*, i. J-4, 5.

Volatility of salicylic acid explains its absorption by healthy skin, absorbed as vapor when used as pomade. *Linossier and Lannois*, v. A-133.

RHEUMATISM (continued).

Salicylic acid used externally. Inconveniences caused by internal use of salicylic acid avoided; analgesic action constant and rapid. *R. Jemma*, v. A-133.

Rectal injections of salicylic acid. Rectum first emptied by enema: ℞ Sodæ salicylat., 1½ drachms; tinct. opii, 15 minims; aq., ad 3 fluidounces. Patient to retain the clyster. *Erlanger*, v. A-132.

In rheumatic fever, following important: 1. The continuation of 40 grains to 80 grains daily of salicylic acid for ten days after all pain and pyrexia have passed. 2. A diet of milk and farinaceous food for at least a week after evening temperature becomes normal. *Latham*, v. A-131.

Salophen a remarkable substitute for sodium salicylate. No action upon chronic rheumatism. *Pierre Marie*, v. A-136.

Twenty-five cases treated with salophen, sodium salicylate, and ol. gaultheria. Improvement more rapid with salophen than with other drugs, complications less serious; no gastric, renal, or constitutional disturbances. One hundred and twenty grains during the twenty-four hours at first; reduce daily amount afterward. *B. H. Waters*, v. A-136.

Malakin in doses of 15 grains three times a day. *R. Abernethy*, v. A-105.

Asaprol in doses of 1 to 1½ drachms in powder or diluted in aqueous solution. *Lewin*, v. A-35.

Very satisfactory results in twenty rheumatic patients from hot sand-baths; not attended with any ill effects and do not expose patient to collapse. To be pleasant, sand should have a temperature of 122° F. *Grawitz*, v. A-178.

Hot sea-baths 100° to 104° F., from thirty to forty-five minutes. *Gérard*, v. A-177.

Strontium salicylate, 10 or 15 grains, acts very decidedly without producing disturbance of stomach. May be given in capsules. *H. C. Wood*, v. A-148.

Strontium salicylate 10 to 15 grains every three hours. *Eshner*, i. J-5.

Subcutaneous injections of nitrate of pilocarpine, ⅛-grain doses. *Drappier*, i. J-5.

Analgen, ¾ to 1 drachm daily, acts remarkably on muscular or acute articular form. Recovery after four or five days. Does not prevent relapses. *Maas*, v. A-12.

PAINFUL JOINTS. Coal-oil, 2 fluidounces; oil turpentine, 2 fluidounces; ammonia-water, 1 fluidounce; tincture opium, 1 fluidounce. *J. H. Powell*, v. A-100.

Sedative effect of high-tension; rapidly-interrupted induction of very great value. *O. L. Williams and S. H. Monel*, v. B-8.

CHRONIC RHEUMATISM.

PATHOLOGY. Gouty and rheumatic attacks alternating with pulmonary, cardiac, or visceral disorders. *Duclos, Davesac, Dreyfus-Brissac*, i. J-5.

Case in which heart affected four or five days before joint symptoms appeared. *Flack*, i. J-5.

Case in which gangrene of a leg necessitating amputation followed rheumatic attack. *Kanellis*, i. J-5.

Case of gangrene of foot induced by endocardial clot in case of endocarditis complicating rheumatism. *A. R. Allen*, i. J-5, 6.

TREATMENT. Two forms: 1. Sequel of primary acute; infectious, relieved by salol. 2. Developing slowly without febrile symptoms, relieved by iodine or iodides. *Marie*, i. J-6.

Inclosing articulation in cylinder containing air at 150° F., the temperature being gradually increased to 240° F., from forty to forty-five minutes. *Hedley*, i. J-6.

Actual cautery, passive motion, sulphurous baths alternating with warm douches of plain or sulphuretted water. Iodide of potassium, 7½ to 30 grains in twenty-four hours. *Letulle*, i. J-6.

To remove nodosities, emollient poultices for one or two days continuously, then energetic kneading under anæsthesia to crush them. Followed by daily gentle massage. *Niehaus*, i. J-6.

Spermine in rheumatoid arthritis. *Pochi*, i. J-6.

Piperazine of value. (See Gout, p. 127.) *Mapother*, i. J-8.

RHUS, OR POISON IVY, POISONING.

Europhen in a 10- to 30-per-cent. ointment with vaselin, solution of the same strength in almond-oil. Preliminary application of a saturated aqueous solution of sodium bicarbonate to neutralize the toxicodendric acid. *W. R. D. Blackwood*, v. D-21.

[The milder strength is advised, as a 10-per-cent. ointment has, in the editor's hands, proved annoying and painful, though ultimately effectual. The application of sodium bicarbonate in a saturated solution promptly relieves all itching and burning. C. Sumner Witherstine, Assoc. Ed., v. D-22.]

RUBEOLA.

See Measles.

RUPTURE.

See Hernia.

SALIVARY CALCULUS.

PATHOLOGY. Hypothesis generally accepted at present is that salivary calculi are due to action of lactic acid upon secretions of salivary glands and glands of oral mucous membrane; that by union of these a coagulum of mucin is formed in which are deposited lime-salts. Deposits similar to calculi in other parts. *Burchard*, iii. K-25, 26.

Case of hard lump in the floor of the mouth and a small tumor in the neck, pain-

ful after eating, all simulating cancer. With a needle a calculus discovered. Removed. *Sheild*, iii. K-26.

Similar condition; stone size of a bantam's egg. *Wm. Robertson*, iii. K-26.

SALPINGITIS. (See also GONORRHŒA.)

PATHOLOGY. Diplococcus obtained from cases of gonorrhœa, of same size as gonococcus, but differing from it in not being decolorized by Gram's method. Found to be harmless in man. *Heiman*, ii. F-50, 51.

Instead of being cause of a strictly-localized disease, gonococcus in itself capable of originating most of the lesions considered as sequelæ and of secondary origin. *G. Klein*, ii. F-51, 52.

Gonorrhœa occurs frequently in women. As latent condition, can become acute and be followed by disastrous consequences, entirely without fresh infection, and, possibly, as result of any process which decreases resistance of infected tissue, such as bruising, operations, etc. *W. R. Pryor*, ii. F-52.

Gonococci are very frequently present in discharges from the cervix and urethra. Gonorrhœa frequent in male, originating from gonorrhœa in the female, of which the latter was apparently ignorant. *C. W. Allen*, ii. F-52, 53.

A case in which acute symptoms were due to existence of posterior urethritis. *F. T. Brown*, ii. F-53.

Latent gonorrhœa must assume an inflammatory type before it can become a source of contagion. Gonorrhœa is frequently communicated by women who, apparently, have no purulent discharge. *P. A. Morrow*, ii. F-53.

What is now designated as chronic purulent salpingitis, practically the same condition described in the male under the term "gleet." *Pryor*, ii. F-53.

Pus of salpingitis may be injected directly without results, but in a few hours may acquire great virulence under favorable conditions. *Boinet*, ii. F-53.

Characteristic specimen of gonorrhœal salpingitis. Fimbriated extremity of left tube completely closed; right tube communicates with pus-laden pouch formed in peritoneum. This pus found to contain gonococci. *Raymond*, ii. F-53.

Case of pyosalpinx in which bacteriological examination revealed presence of organisms resembling very much the diplococcus of pneumonia. *Louis Frank*, ii. F-54.

Form of pelvic inflammation with which small suppurating cysts of ovary and ovarian abscesses usually associated not pelvic cellulitis, but salpingitis,—ovarian suppuration due to secondary infection. Analysis of eighty-three cases. *Cullingworth*, ii. F-54.

Concurrence in this view, emphasizing necessity of removing the whole of ovarian tissue in such cases. *Galabin*, ii. F-54.

Necessity of curing endometritis in order to prevent extension. *Duncan*, ii. F-54.

DIAGNOSIS. Diagnosis of cases in which there is little to be felt in pelvis is difficult; likely to be mistaken for ovaritis. Neurotic women, anæmic girls, frequently suffer from ovarian tenderness; but no acceleration of pulse or rise in temperature. Pus-tube may be mistaken for fibroid. *J. F. W. Ross*, ii. F-54.

Myalgia of abdominal and gluteal muscles may be mistaken for pain referable to disease of pelvic organs. *Rabagliati*, ii. F-54.

Undescribed symptom: Severe pain over the region of liver, probably due to reflex action resulting from pressure upon pelvic nerves. *William C. Wood*, ii. F-54.

Perimetritis from vulvitis in infants resembles the varieties indicating acute inflammation of appendages in adult. Tubes generally involved. Focus of salpingitis often dates from early childhood. *Marx*, ii. F-54.

Rarity of torsion of pedicle in salpingitis explained by the fact that in the latter the pedicle is generally broad and short and that the tumor reaches to the uterine cornua. Symptoms of twisting of pedicle in hydrosalpingitis same as in ovarian cysts,—hæmorrhage, evidences of peritonitis, simulation of intestinal obstruction. *Hartmann and Reymond*, ii. E-55, 56.

Hydrosalpingitis not, as a rule, dangerous to life, but suffering intense. If diagnosis uncertain, exploratory puncture. Twenty-seven operations; four deaths from purulent peritonitis. Colored plates. *Kelly, Cullen*, ii. F-56.

TREATMENT. Out of 651 cases of salpingitis, acute or chronic, 75 recoveries after removal; 41 cured after local treatment without operation; 512 improved after palliative local treatment, 22 unimproved; 1 death after operation. Distension of tube with pus, 40 cases; cœliotomy in 26 with 21 recoveries. *Paul F. Mundé*, iii. F-57.

In choosing operation, best to reserve vaginal hysterectomy for cases in which palpation shows that lesions are bilateral. If uterus movable, laparotomy indicated; if not, hysterectomy. *Quénu*, ii. F-57.

Strong plea against curettage in presence of pus-tubes, with pelvic adhesions. *J. B. S. Holmes*, ii. F-57.

Use of curette in course of acute gonorrhœa seems unjustifiable; one of surest ways to cause extension of disease to tubes and ovaries. *Auvard*, ii. F-57.

Many cases in which removal of inflamed appendages was followed by untoward after-results due to suppuration of stump, discharge of ligature, adhesions, etc. In 216 operations 11 died from causes directly con-

SALPINGITIS (continued).
nected with operation, while out of 100 cases of aspiration or incision none died. *Hofmokl*, ii. F-57, 58.

Hysterectomy has won its way against opposition; must now be considered as elective procedure in cases of extensive suppuration with adhesion and especially cases in which the endometrium likewise the seat of purulent inflammation. *Geo. H. Rohé*, ii. F-58.

Strong plea in favor of vaginal hysterectomy. Mortality in 255 cases only 1.96 per cent. Ideal method for cases in which it is necessary to remove both tubes and ovaries. *Jacobs*, ii. F-58.

Vaginal route permits us to explore, treat, and preserve organs otherwise sacrificed; it promotes drainage from most dependent portion of pelvis; it enables us to remove uterus and appendages with less danger and more subsequent comfort for patient; convalescence shorter. *Montgomery*, ii. F-58.

Marked preference for abdominal method. *Baldy, Noble, Baer*, ii. F-59.

An important objection: Fistulæ, which follow vaginal operation even in the hands of best operators. *Baldy*, ii. F-59.

A proper field for vaginal method in bad cases of pelvic suppuration, but not in hysterectomy. *Noble*, ii. F-59.

Necessity of treating wound in vaginal method as open wound, and incompleteness of operation objectionable. *Baer*, ii. F-59.

In bilateral pyosalpinx a more perfect operation is performed by abdominal section. When sympathetic affected, the cause is not in uterus, ovaries, or tubes alone, but partly in each. In marked nervous cases best results obtained only after removal of uterus, tubes, and ovaries. *J. H. Carstens*, ii. F-59.

A uterus deprived of its appendages is of no use; if left, liable to tuberculosis, gonorrhœa, syphilis, adhesions, etc. *R. S. Sutton*, ii. F-59.

The cervix when healthy should be retained. Acts as support for vault of vagina. *Henry O. Marcy*, ii. F-59.

Tubes always pervious at outer extremity of cornu. Hence gonorrhœal inflammation not adhesive. Intra-abdominal pressure will cause fluid in tube to ascend into uterus; and the entire tract may thus be opened by dilating the uterus. *Glasgow*, ii. F-59, 60.

It is possible to catheterize Fallopian tubes; hence attempt to treat cases by applications made directly to their surfaces justifiable. *Llewellen Eliot*, ii. F-60.

Case in which cervix had been amputated and complete atresia resulted through want of care in keeping canal open. Double hæmatosalpinx due to retained menstrual fluid thus caused suppuration in uterus. Hysterectomy. *Pozzi*, ii. F-60.

When gonococcus detected in secretion, urethral and vesical irrigation with permanganate-of-potassium solution 1 per 1000 to 1 per 2000 every day from 10 to 14 days. In later stage irrigation of urethra and bladder with sublimate solution 1 to 20,000. *Cumston*, ii. F-60.

TUBERCULOUS SALPINGITIS. Case in a woman who had tuberculous husband, post-mortem furnishing confirmatory evidence. *Percy Ashworth*, ii. F-60, 61.

Case of probable metastatic salpingitis in girl, who also suffered from articular tuberculosis. *Hugon*, ii. F-61.

Case successfully operated on. Well since three years. *Gérard Marchant*, ii. F-61.

Five cases of tuberculosis of Fallopian tube; a series of twenty-five abdominal sections for pelvic inflammatory trouble. All five sterile, though four married. *Penrose and Beyea*, ii. F-61.

Case in which removal of appendages disclosed extensive tuberculous peritonitis. Death ten months later, post-mortem showing that tuberculosis of peritoneum had disappeared. *Wahlstrom*, ii. F-61.

Proposal to substitute vaginal for abdominal laparotomy in pelvic tuberculous peritonitis. It permits of modifying the tuberculous lesions through the use of iodoform dressings. *Condamin*, ii. F-61.

SARCOMA. See Tumors.

SCALDS. See Burns.

SCARLET FEVER.

ETIOLOGY AND PATHOLOGY. Illogical to insist upon necessity of a specific organism, all lesions entering within the field of the streptococcus. *Bergé*, i. H-57.

Klebs-Lœffler bacillus never found in pseudomembranous angina of scarlatina; streptococcus present in tonsillar crypts from the beginning. If the rash is intense, streptococcus also found in vesicles of the miliary eruption. *Kemper*, i. H-58.

Bacteriological study of 117 cases showing that the streptococcus is the only organism always present in scarlatiniform angina. Streptococcic origin of angina of scarlatina not peculiar to this affection. *Lemoine*, i. H-58.

In examining as early as possible four uncomplicated cases, streptococcus found only once, but twice a streptococcus presenting characteristics of that of scarlatina discovered. Cocci smaller, rounded in form. *Espine*, i. H-58.

Blood from scarlatinal patients shows micro-organisms in the form of diplococci. Found in relatively small numbers,—one to two in a field of vision, sometimes in twos or short chains, oval, and do not stain by

ordinary methods. Growth upon solid culture-media very slow. *Czajkowski*, i. H-58.

In a large number of cases albuminuria of pregnancy dependent upon latent renal alteration following scarlet fever. Necessity of inquiring into pathological antecedents of all women to be attended in confinement. Special diet indicated if history of infectious disease. *Delbreil*, i. H-59.

Albuminuria of scarlatina is a manifestation of multiple and variable lesions, either transitory or permanent. Remote renal manifestations of searlatina correspond to several types governed by degree of anatomical alteration. *Lid*, i. H-59.

Special form of scarlatinous glomerulonephritis, most characteristic alteration of which is repletion of capillary loops of glomerule by a filamentous and partially granular mass. *Kahlden*, i. H-59.

RE-INFECTION. In 2453 cases re-infection occurred in 17. Age seemed to play no part; primary disease in most cases light or moderately severe; in 3 only moderately severe. Onset of re-infection marked by no special complication, except in 3 cases: catarrhal pneumonia, enteritis; intercurrent attack of measles. *Hase*, i. H-60.

Unusual case in which scarlet fever appeared twice during same year. Convalescence and recovery without complications. Rest of family isolated and escaped. In the second attack symptoms marked, though throat-symptoms not so prominent as in first. *Crandall*, i. H-60.

Case of two attacks in two weeks. Second attack rather more severe than the first. *Sequeira*, i. H-60, 61.

Of 2593 sent to their homes after an attack, re-infection ensued in 70 of the houses, or 2.6 per cent. In 93 per cent. secondary illness appeared within fourteen days of the return. Isolation of patient from children should be strictly maintained some time after his return from hospital. *Chalmers*, i. H-61.

CONCOMITANT DISORDERS. Co-existence of varicella and scarlet fever and measles and scarlatina probably more frequent than is generally supposed. Symptoms of one fever mask the other; hence, rarely recognized. *Himowich*, i. H-61.

Cases of scarlatina and measles occurring simultaneously. *Jas. Ferguson, J. Johnston, G. A. Himmelsbach, H. C. Gordinier, Jas. B. Herrick*, i. H-62.

Instance in which two patients lying side by side, of whom one, suffering from scarlatina with diphtheroid angina, contaminated the other. Latter then presented symptoms of erythematous scarlatiniform angina without rash. *Rondot*, i. H-62.

Case in which, during period of desquamation and complete apyrexia, an eruption of variola occurred. Recovery. Absence of scarlatiniform nephritic symptoms during period in which they are usually met with, perhaps due to influence exerted by variola upon scarlatiniform process. *Resser*, i. H-62.

Similar case of scarlatina and simultaneously-evolved variola. *Wolberg*, i. H-62.

In 3026 cases of scarlet fever rheumatism recorded as a complication in 117, or 3.88 per cent. Close resemblance to ordinary rheumatism and probability that scarlet fever stands in relation to this disease as a strongly predisposing cause. *A. D. Hodges*, i. H-63.

Cases of suppurative joint-lesions. Majority associated with some inflammatory condition of pharyngeal and cervical structures. Evidently the source of infection. *G. Bellingham Smith and Mary D. Sturge*, i. H-63.

Fourteen instances in which anterior pillar of fauces was perforated, taking place from ninth to twenty-eighth day; almost diagnostic of scarlet fever. *Goodall*, i. H-64.

Case of pulmonary gangrene which developed during subsidence of scarlatina with no premonitory symptoms. At autopsy pus and pyogenic false membranes found in left pleura. *Richardière*, i. H-64.

SYMPTOMATOLOGY. Mere presence of a scarlatinal rash and other typical symptoms does not always warrant diagnosis of scarlet fever. Absolute diagnosis sometimes impossible for some days. Most important are cases of rubella or rötheln. Rubella more closely resembles measles. Even in mild cases of scarlatina, more decided disturbance of nervous system than in rubella. Drowsiness or marked irritability of nervous centres generally precedes exanthem in scarlatina, very seldom in rubella. Rash in rubella shows distinctly patchy condition with raised margins, never the case in scarlatina. *Blackader*, i. H-64.

Some of the most constant symptoms of scarlet fever may be wholly lacking not only during the first days, but through the whole course of the disease. *Starr*, i. H-65.

Peculiar form of vomiting an excellent diagnostic symptom to recognize disease at very early period. It occurs very suddenly without apparent cause. *Valli*, i. H-65.

Case of rash resembling that of scarlatina, pharyngitis, and tonsillitis. A fortnight later, fluctuation both sides of olecranon. Pus containing streptococci in large numbers. *Rocaz*, i. H-65.

Case of surgical scarlet fever not due to septicæmia or pyæmia, but to specific contagion. Grave responsibility rests upon surgeon in these cases. Belief in non-contagious character of so-called surgical scarlatina tends to spread it broadcast in the family

SCARLET FEVER (continued).

and the community. *Theodore McGrau*, i. H-65, 66.

Scarlet fever associated with streptococcic infection admitted to be the cause of surgical scarlatina, puerperal fever, and erysipelas. Probable identity. *Rosa Engelmann*, i. H-66.

TREATMENT. Marmorek's antistreptococcic serum to endeavor to prevent secondary infection had no injurious effects, but did not appear to have immunized the patients against complications. *Josias*, i. H-66.

One hundred and twenty cases treated with oil of eucalyptus. Careful rubbings all over body three times a day for three days, followed by one rubbing after a warm bath. Eucalyptus in solution was also sprayed into patient's throat, mouth, and nose, and into the air of the room. Remarkable results. *Priestley*, i. H-67.

Under above treatment albuminuria rarely occurred in cases treated, desquamation was hastened, and mortality-rate greatly reduced. *J. Brendon Curgenven*, i. H-67.

Gargles of solution of carbolic acid and internal administration of salol—7½ to 30 grains—daily. No albuminuria at period of desquamation. Strictly milk diet enforced during illness. *Quive*, i. H-67.

Case of concurrent scarlet and enteric fever. Albuminuria disappeared when hæmorrhage occurred. Hence venesection at the right time might relieve nephritis. *E. Allen MacKeny*, i. H-68.

In suppurative joint-lesions of scarlatina advantage of prolonged immersion of joint in warm boric bath. During intervals hot boric fomentations preferable to dry dressings. Nasal feeding to combat exhaustion by extra food. *G. Bellingham Smith and Mary D. Sturge*, i. H-68.

SCLERODERMA.

Case of extensive scleroderma in a girl aged 21. That the disease is a trophoneurosis supported by the disturbance in secretion and muscular atrophy sometimes seen. Massage, with numerous baths; palliative action of electrical treatment is at times considerable. *Friedheim*, iv. A-50.

Case of scleroderma en bande limited to area of the internal cutaneous brachial nerve. Diminution of sensibility to touch and pain. *Hallopeau*, iv. A-50.

SCOLIOSIS.

In scoliotic column there is not only torsion, but also true rotation of bony tissue. Articular surfaces are sometimes thicker on one side, owing to formation of layer of bony substance. Appears as if development of spinous processes had been arrested, while that of vertebral bodies had been exaggerated. *Albert*, iii. G-19, 20.

Alteration in spongiosa corresponds with torsion of vertebra around a diagonal axis. *Hoffa*, iii. G-20.

Nervous antecedents of many scoliotic patients point to neurasthenia as the primary affection. *Petit*, iii. G-20.

In 40 perfectly healthy individuals as regards musculature and external form, only 2 found in which spine was perfectly straight. In all others lateral dorso-lumbar curvature observed, convexity being turned toward left side. *Richer*, iii. G-20, 21.

Always sleeping on one side the cause of a large proportion of cases. Reversing the position sufficient treatment in two cases reported. *Wilbur*, iii. G-21.

TREATMENT. Scoliosis never undergoes retrogression after it has reached second degree; hence therapeutic efforts should be directed exclusively toward preventing deformity from increasing. Gymnastics should be avoided. Ideal position, dorsal decubitus with suitable apparatus, but hardly possible. *Lannelongue*, iii. G-21.

Forcible stretching of ligaments and periosteum, causing compensatory ossification on opposite side. Patient anæsthetized, placed upon a low table on his side, with pillows under shoulder and pelvis. Strong pressure then made upon convexity in jerky movements. *Delore*, iii. G-21, 22.

Massage gives remarkable results in beginning cases. Only an adjuvant in awakening nutrition of muscles of thorax. *Tisell*, iii. G-22.

Rapid thorough physical development curative in several cases. *Teschner*, iii. G-22.

Systematic gymnastics with correcting apparatus. Modification of Nyrop's apparatus causing pelvic belt to exactly correspond to form of body. *Dolega*, iii. G-22.

SCOPOLIA LURIDA, POISONING.

Several cases. Symptoms very distinctive of belladonna poisoning. Morphine subcutaneously, then ammonii carbonas to induce emesis; men kept moving. Recovery. *Allan Macnab*, v. D-22.

SCORPION-STINGS.

"Haribali" grass ("arvum pilli") juice inserted into either nostril of the patient very effective. *H. Henderson*, iii. M-23.

[The clinical observation related is particularly interesting, especially if compared with other conditions in which reflex action from nasal mucous membrane seems to play an important part through pneumogastric. It tends to indicate that this nerve bears brunt of toxic influence. Ed., iii. M-24.]

Camphorated chloral (equal parts of camphor and chloral hydrate) gives almost instant relief from acute pain produced by venom of scorpion. *Vinze*, iii. M-24.

SCROTUM. See TESTICLES, DISEASES OF.

SCURVY.

PATHOLOGY. Micro-organism found,—supposed to be the cause of scurvy, inoculations having produced hæmorrhagic stains and other signs of the affection. *Testi and Beri*, i. K-24, 25.

Free hydrochloric acid absent from gastric juice in protracted cases, and total acidity reduced in majority of cases. *Albertoni*, i. K-25.

Case showing that scorbutic habit does not immediately follow deficiency of acids. *Jamieson*, i. K-25, 26.

INFANTILE SCURVY.

ETIOLOGY AND PATHOLOGY. The hæmorrhagic condition is an exaggeration of the anæmia which is always present in acute rickets. *Ashby*, ii. I-11.

Subdural hæmorrhage in a case. Entire vault the seat of a clot, though no evidence of bleeding found at the base. *Ord*, ii. I-11.

Infantile scorbutus caused by the use of proprietary foods and condensed milk and the want of fresh foods. Occurs in children of well-to-do between 9 and 14 months. Rheumatism of legs and spongy gums sufficient data for diagnosis. *Northrup*, ii. I-11.

Disease usually appears late in the winter or in the spring; entire body becomes sensitive and painful. Swellings on ribs, scapula, skull, and ilium; œdema over malleoli and on eyelids. Fever not prominent. Pulse small, soft, and frequent. *Furst*, ii. I-12.

Cases of infantile scurvy reported. *Love*, *Wise*, *Egan*, *Blackader*, *Dercum*, *and Snow*, ii. I-12.

[I can add a case to the foregoing in a child, 16 months old, of syphilitic family history. The symptoms presented were similar to those which have been mentioned. In spite of the treatment with fruit-juice and sterilized fresh milk the case resulted fatally. The disease presents points of similarity with that which was described some years ago by Parrot under the name of athrepsia. ANDREW F. CURRIER, Assoc. Ed., ii. I-12.]

In children close resemblance to rachitis, and often erroneously treated as latter. Hydræmic effusions into most of organic tissues, especially the subperiosteal, establish its scorbutic origin. Usually attacks infants before end of first year. Extreme pallor, mental apathy; swelling of epiphyseal junctions of wrists and ankles with severe pain. Hæmorrhage into orbit with palpebral tumefaction characteristic. Dentition delayed, teeth corrugated; gums vascular, spongy, projecting irregularly; breath fetid. Appetite good, contrary in rachitis. No diarrhœa. Oftener observed among rich than among poor people, due to use of proprietary foods. *Wise*, i. K-26, 27.

TREATMENT. In infantile scorbutus pure cows' milk sparingly diluted with lime-water and scalded and baked potato finely sieved as main diet. Sweet orange-juice *ad libitum*. Excellent results. *Wise*, i. K-27.

Three cases of infantile scurvy from sterilized milk. *Louis Starr*, i. K-28.

Case, in an infant 11 months old, in which first symptom was inability to use the legs and feet properly. It had been fed six months on oatmeal-gruel. Diet of grape-juice; relief in a week. *Machell*, ii. I-11.

Case in an infant of 9 months. Improvement followed beef-juice, orange-juice, and fresh milk. *Carr*, ii. I-11.

SEA-AIR AND SEA-BATHING.

Marine atmosphere, to which the sea communicates its thermic properties, enjoys an equality of temperature, while the land-climate is inconstant and variable. *Lalesque*, v. A-174, 175.

Sea-air causes (1) radiation of the bodily temperature,—a more speedy cooling of the surface; (2) reduction in frequency of the respiration; (3) moderate increase in the pulse-rate; (4) a similar increase in the body-heat; (5) increase of the urea and sulphates, decrease of phosphoric and uric acids; (6) a greater appetite for sleep, subject to variations according to the individual. Patient should possess a certain power of climatic resistance. *Kuhner*, v. A-175, 176.

European marine climate shows (1) a medium annual temperature higher than that of countries situated in the same latitude; (2) less sudden changes; (3) predominance of westerly winds; (4) predominance of autumn rains; (5) an increased average humidity. Atlantic shores have a sea-climate, while Mediterranean shores possess a Continental climate influenced by variations of the temperature on land. *Lalesque*, v. A-176.

Most marked effect observed in individuals accustomed to town- or country- air produced on the circulation; sphygmograph shows slower pulse and higher curves. Skin temperature more permanently reduced by sea- than land- air. *Lindemann*, v. A-176.

Advisability of sending pulmonary cases to sea-side. If disease slow in progress, marine climate will prove beneficial. If fever, hæmoptysis, or cavities of any size, if individual be nervous or arthritic, sea-air should be avoided. Breeze from the sea mild and beneficial, that from land to be feared. *G. Houzel*, v. A-176.

Children should become acclimated before being allowed to run at liberty on the sea-shore. They should be taken there only a few hours the first days; baths only begun, until sixth day, during warmest hours. *Houzel*, v. A-176.

SEBORRHŒA.

Parasite may assume three distinct forms, —rods of Unna, small ovoid corpuscles, or more voluminous spherical bodies of Bizzozero. *Van Hoorn*, iv. A-50.

Case in which seborrhœa of the scalp was closely connected with conjunctivitis and ear-disease. Example of a large series of similar cases recently observed. *Alf. Eddowes*, iv. A-51, 52.

SEPTICÆMIA.

PATHOLOGY. Streptococcic infection but unusual form of growth in blood-vessels, called by Klebs "endothelial mycosis." Micro-organisms found in vasa recta and straight uriniferous tubules. *Pfister*, iii. M-15.

Close etiological relations between surgical purulent infection, puerperal septicæmia, and erysipelas. *S. Arloing and E. Chantre*, iii. M-15.

Two cases of general infection with the staphylococcus without definite visceral manifestation or other distinct localization. Disease appears to be rare. *Etienne*, iii. M-16.

In septicopyæmia germs of suppuration always found in circulating blood; their demonstration furnishes the most positive evidence in diagnosis of affection. *Sittmann*, iii. M-16.

Many cases classified as articular rheumatism are really septic in origin. Exciting cause of acute articular rheumatism may entirely be a pus-microbe accidentally modified by external circumstances. *Adolphe Dennig*, iii. M-16.

Numerous febrile processes met with clinically which cannot be referred positively to any known source. Found much oftener in children than in adults. Suggests a form of "medical septicæmia." *W. S. Christopher*, iii. M-16.

TREATMENT. Intra-venous injections of serum in two cases of post-operative septicæmia. Results encouraging. *Michaux*, iii. M-17.

Injections used in several cases of hæmorrhage and shock, in doses from 2000 to 3000 grammes. Very good results. *Monod*, iii. M-17.

Six hundred grammes of serum injected into basilic vein. Death in a few hours. *Routier*, iii. M-17.

SHOCK.

PATHOLOGY. In frogs, during condition of shock, the spinal cord insensible to action of strychnine and muscles insensible to that of veratria. This indicates why strong remedies (stimulants) do not exercise usual influence upon system. *H. Roger*, iii. M-18.

Weight of evidence favors theory that the pathology of surgical shock is hyperirritation of entire sympathetic system rather than local or general vasomotor paresis. *Eugene Boise*, iii. M-18.

That pain, fear, and shock have much in common is shown by series of constant phenomena: Alteration of pupils, weakness of voluntary muscular system, modification in respiration, etc. *J. Likorsky*, iii. M-18, 19.

Acute anæmia primary and cardinal feature of surgical shock. Use of tourniquets immediately after crushing injuries to extremities and waiting for patient to recuperate from immediate effect of large loss of blood imperative before amputating. *W. L. Estes*, iii. M-19.

SLEEPING SICKNESS.

Poisoning by the continual absorption of the malarial protozoön, its effects on the trophic nervous system, and the production of toxins combine to give rise to the main symptom. In two cases, blood found to contain Filaria sanguinis hominis, major and minor.

TREATMENT. Most applicable in tropical countries: Two compound cathartic pills at bed-time, repeated if necessary. Twice a day $\frac{1}{60}$ grain of strychnine if patient awake and subcutaneously if asleep, occasionally alternated with digitaline $\frac{1}{100}$ grain. Even when patient moribund strychnine nitrate $\frac{1}{15}$ grain will rouse him. Meat and stimulants. *Charles Forbes*, i. G-56.

SMALL-POX. See VARIOLA.

SNAKE-BITES.

PATHOLOGY. Venom acts primarily on blood and secondarily on nervous system. Non-coagulation of blood and production of large cells. *G. B. Halford*, iii. M-19.

Large cells found by Halford merely altered leucocytes. Blood-changes not the cause of symptoms. Frogs whose blood is replaced by saline solution at 0.7 per cent. present the same symptoms. *Brenning*, iii. M-19.

Ablation of poison-glands in forty-six vipers determined a distinct diminution of toxicity of the blood of the reptile. A part of the poison in the blood is, therefore, reabsorbed secretion of the special poison-glands. *Phisalix and Bertrand*, iii. M-19, 20.

TREATMENT. Willingness to supply samples of serum prepared by him to physicians wishing to try it. If injected in sufficient quantity prevents action of venom, provided intoxication not too far advanced. *Calmette*, iii. M-20, 21.

Experiments showing that solutions of chloride of lime possess no general immunizing action, but purely a local effect, mortification of the tissues preventing absorption of toxic substance. *G. Phisalix and G. Bertrand*, iii. M-21.

Chloride of lime preventive when injection made deeply into tissues in the region of bite. *Calmette*, iii. M-21.

Two cases in which its use produced favorable results. Solution of chloride of lime injected into different regions. *Hodgson*, iii. M-21.

Experiments on animals tending to show that liquor strychninæ given subcutaneously is useless. *R. H. Elliott*, iii. M-21.

Many cases in which strychnine of use are really not cases in which poisoning had taken place. *R. H. Elliott*, iii. M-21, 22.

Action of subcutaneous use of strychnine regular and prompt, and after a time stops entirely. Should not be employed until unmistakable symptoms of snake-poison perceptible. Patient must be watched twenty-four hours after disappearance of last symptoms. Of 37 cases, recoveries in 67.5 per cent. Nitrate of strychnine, in $\frac{1}{15}$-grain doses, repeated about every two hours. The only remedy to be relied upon; must be carried out with boldness, after symptoms pronounced. *Joshua Duke*, iii. M-22.

Cases in which strychnine method was successful. *Alvah Stone, M. Perceval, Ernest Humphrey, Ram Dhary Sinha, S. E. Peall*, iii. M-23.

Potassium-permanganate 1-per-cent. solution injected into the wound. *G. Roux*, iii. M-23.

Permanganate of potassium successfully used. *J. C. Bankson, J. K. Cissell, F. W. Maloney, W. T. Bertrand, E. G. Goodman*, iii. M-23.

Tincture of Asclepias virticellata (Linn), weed used for this purpose by natives of Alabama. *Sawyer*, iii. M-23.

Use of a dry cup instead of the mouth to exercise suction upon the wound. *G. Roux*, iii. M-23.

Case in which suction of viper-wound was followed by dangerous symptoms. Inoculation through a lacerated gum, a tooth having been extracted shortly before. *Hirschhorn*, iii. M-23.

SPASM; CONVULSIONS.

Case of spasm of little finger, attributed to predominating action of interosseus palmaris and flexor minimi digiti. *Feré*, ii. C-26.

Bodily fatigue as cause of painful spasms, trembling, compelling cessation of work. Recovery after rest and prolonged warm baths. *Shultze*, ii. C-26.

Reflex spasm due to irritation of dental nerve. *Lindsay*, ii. C-26.

Case in which gonococcus and its toxins probably affected spinal cord, altered its trophic action, and caused proliferation of corneous outgrowths. *Jeanselme*, ii. C-27.

SPIDER-BITES.

Two cases in which symptoms of serious nature present,—*e.g.*, cramps, convulsive trembling, involving neuro-muscular system only. *Guibert*, iii. M-24.

Bite on glans penis by a spider followed by intense pains with contractions of abdominal and thoracic muscles. *R. H. Lewis*, iii. M-24.

TREATMENT. Injections of $\frac{1}{60}$ or $\frac{1}{90}$ grain of strychnine, first injection containing also $\frac{1}{100}$ grain of trinitrine. Result excellent. *Taylor*, iii. M-24.

Subcutaneous injections of strychnine in tarantula bites recommended. *Charles Forbes*, iii. M-24.

SPINA BIFIDA.

PATHOLOGY. The majority of cases instances of meningocele rather than of myelocele. *Robson*, iii. G-22, 23.

Case of spina bifida of sacro-coccygeal region. No case of this kind hitherto observed. *Vaton*, iii. G-23.

Case in which tumor communicated with interior of skull by passing through foramen magnum and an opening in neural arch of atlas. *Edwards*, iii. G-25.

Case in which spina bifida in dorso-lumbar region. Paralysis of lower extremities only with eversion. Coincident development of hydrocephalus. *Thompson*, iii. G-23.

Case of unusual complication of a lipoma and spina bifida. *Lindsey*, iii. G-23.

TREATMENT. Majority of cases being meningocele are therefore more amenable to radical treatment. Use of Morton's fluid dangerous. Nearly all cases calling for interference may be treated by excision of the whole or part of the sac with great probability of success. Twenty cases with but four deaths. 1. Operation not necessary in cases in which the sac is small and well covered by a firm pad of integument. 2. Operation not advisable in fissure of spinal column or where there is well-marked hydrocephalus or paraplegia. 3. Operation indicated in meningocele, where coverings thin and translucent; where cord expanded, and nerves blended with sac. Of utmost importance to render parts aseptic. In most cases silver or celluloid shield should be worn for a time to protect cicatrix. *Robson*, iii. G-23, 24.

Failures in past mainly due to septic infection. The higher the opening in the canal, the less the liability to return. *Marcy*, iii. G-24, 25.

Cases successfully operated by excision. *Roswell Park, Woodward, Field, Young, Ramsay, Tansini*, iii. G-25.

Hydrocephalus, often associated with spina bifida, the main cause of failure of operative treatment. Treatment of hydrocephalus very discouraging. Only cases in

SPINA BIFIDA (continued).
which operation indicated those in which swelling has ruptured or is on the point of doing so. *Broca*, iii. G-25.

SPINA BIFIDA OCCULTA. Case of spina bifida occulta with consequent degeneration of ano-vesical centre in conus terminalis. Autopsy. *Bohnsted*, iii. G-25, 26.

Case with absence of laminæ of last three lumbar and all sacral vertebræ; opposite first sacral, dura mater and arachnoid prolonged backward into narrow tube ending in a scar in skin. No liquor amnii. *Clarke*, iii. G-26.

SPINAL CORD, COMBINED DISEASES OF.

Combined diseases of the columns as an independent disease type clearly distinguishable from other similar pathological processes in the spinal cord occur in adults. In a large number of cases gray substances of cord likewise diseased; would be most correct to consider the disease of the gray substance as the primary process. *Rothmann*, ii. B-49, 50.

[In this he probably goes too far, since in consequence of a diseased state of the gray substance, and particularly of the cells of the columns in question, we should expect to see, first and most intense, a degeneration of certain well-known short tracts. H. Obersteiner, Assoc. Ed., ii. B-50.]

Careful examination of a spinal cord of patient with paresis of lower extremities due probably to disease of lateral column. Posterior columns slightly involved. Clark's columns markedly degenerated; sclerosis of cerebellar tract of lateral columns. Pyramidal tract of latter affected, disease gradually diminishing toward upper portion. Spinal meninges normal; primary degeneration of pyramidal tracts probable. *Dejerine, Anscher*, ii. B-50.

Case in which a course very nearly similar to that of amyotrophic lateral sclerosis was followed. Very slight changes found in anterior-horn cells. Pyramidal tracts degenerated; slight lesions also in cerebellar tracts of lateral columns; also Clark's columns, Lissauer's tract, and upper portion of Goll's columns. *Olivier, Halipré*, ii. B-50, 51.

SPINAL CORD, DISEASES OF.

(See also Myelitis, Anterior Poliomyelitis, Amyotrophic Lateral Sclerosis, Acute Ascending Paralysis, Spastic Spinal Paralysis and Little's Disease, Hæmatomyelia and Hæmatorrhachis, Syringomyelia, Tabes Dorsalis, Friedreich's Disease; Spinal Cord, Combined Diseases of; Diseases of the Cauda Equina.)

INSULAR SCLEROSIS.

PATHOLOGY. In certain cases a primary degenerative process of nerve-elements is to be accepted which only secondarily results in neurogliar proliferation. *Huber*, ii. B-14.

Even in very old cases of insular sclerosis recent nerve degenerations are sometimes met with, either in border-zone of larger and older foci or in the form of entirely new foci. *Bikeles*, ii. B-14.

In all cases in which paresis of one or of several extremities disappears only to reappear much later on, insular sclerosis must be suspected. Five cases. *Buzzard*, ii. B-14.

A typical case of insular sclerosis. Most important symptoms, general weakness and emaciation, clumsy shuffling gait, exaggerated reflexes, presence of ankle-clonus, exophthalmos, internal strabismus, and mental impairment. *Diller*, ii. B-14.

Case following syphilitic infection. Improvement after antisyphilitic treatment. *McCall Anderson*, ii. B-15.

Case in which insular sclerosis appeared about two months after an attack of influenza, with hemiplegia; hysterical functional symptoms appearing in connection with organic disease. *Rendu*, ii. B-15.

[We may, as a matter of course, accept the fact that in each separate case of organic disease of the spinal cord there is a certain proportion, sometimes very great, of symptoms which are to be regarded as functional. The improvement occasioned by hypnotic suggestion in these cases is thus explained. H. Obersteiner, Assoc. Ed., ii. B-15.]

Several instructive examples of such cases. *H. Osgood*, ii. B-15.

Case of insular sclerosis showing a decided trembling of entire body, which disappeared while in repose. *Ameschot*, ii. B-15.

SYPHILIS OF THE SPINAL CORD. Symptoms of acute form may appear in a sudden apoplectiform manner; pronounced softening of the cord then found. *Sottas*, ii. B-10.

Case in which there was no softening. *MacGregor*, ii. B-10.

Participation of vessels in the development of syphilitic meningomyelitis established experimentally by forming artificial embolisms of spinal arteries. *Lamy*, ii. B-10.

Fifteen new cases syphilis of spinal cord; type of Erb's syphilitic paralysis not invariably present, occasionally also a typical transverse myelitis. *Krütze*, ii. B-10.

Erb's syphilitic spinal paralysis an independent disease. To well-known symptoms—heightened thermal reflexes—are added the fact that transmission of sensations of pain and of touch are not retarded. *Trachtenberg*, ii. B-10.

Three cases, one ending fatally. Microscopically: Diffuse syphilitic alterations in vessels, particularly in posterior and lateral columns. *Wilhelm*, ii. B-11.

As yet impossible to determine from macro- or micro- scopical results whether we have to deal with tuberculosis or syphilis, when no bacilli of tuberculosis are found. *Böttiger*, ii. B-11.

Case showing deviation from usual course,—*e.g.*, characteristics of amyotrophic lateral sclerosis. *Olivier and Halipré*, ii. B-11.

[Syphilitic pseudoparalysis has already been mentioned in the section on anterior poliomyelitis. H. Obersteiner, Assoc. Ed., ii. B-11.]

TUMORS OF THE SPINAL CORD. Statistics from 123 cases of tumors of spinal cord, with 22 cases in which seat of trouble correctly diagnosed and operative measures resorted to (6 personal cases). In only 2 cases have surgeons failed to find tumor. In 11, patients died soon after operation, in 11 cases they recovered after surgical interference. Recovery from paraplegia in six days. One of the most important differential symptoms in tumors of spinal cord is the pain, which begins early and is always confined to the region of the compressed nerve-roots. *Allan Starr*, ii. B-21, 23.

Case of extra-medullary gliosarcoma reaching from region of second lumbar nerves into the cauda equina. Increasing weakness in the legs with diminution of sensibility. Death from marasmus. *Fischer and Van Gieson*, ii. B-23.

Case of tubercle of upper cervical cord, giving rise to symptoms greatly resembling those of bulbar syringomyelitis. *Schlesinger*, ii. B-23.

Several cases of tubercle in the spinal cord; progressive with but very few symptoms. *Chiari*, ii. B-23.

Tubercle, size of a cherry, found in the cervical spinal cord. *Gerlach*, ii. B-23.

A case of tubercle of the cervical spinal cord and one with several cysticerci of the spinal cord. *Gerhard*, ii. B-24.

Case of multiple spindle-cell sarcomata (probably metastases from kidney) in the spinal cord and nerves of cauda equina. *Müller*, ii. B-24.

Complete paraplegia from cervical echinococcic cyst. Opened from the outside. Complete recovery. *Szekères*, ii. B-24.

Sarcoma of upper dorsal region; extirpated. Sensibility and mobility gradually returned. *Kümmel*, ii. B-24.

Case of tubercle, developing within space of several weeks, in upper cervical cord. Paresis of right side main symptom. *Le Boeuf*, ii. B-24.

A diffuse glioma in boy 1 year old, affecting almost entire spinal cord. Symptoms comparatively slight. Paralysis of upper extremities. *Holt and Herter*, ii. B-24.

Small, syphilitic gumma in left lateral pyramidal tract, about mid-dorsal region, surrounded by a zone of myelitis. Local pain; then numbness, paresis, and paraplegia. *Williamson*, ii. B-24.

Case of multiple sarcomatosis of cerebral and spinal meninges. Entire arachnoides of spinal cord infiltrated. *Westphal*, ii. B-25.

Case of epitheliomata of cervical dura mater. During very slow progress of disease, decided aggravation occurred after a fall. *Michell Clark*, ii. B-25.

Two cases of sarcoma of dura spinalis. *Röttger*, ii. B-25.

Two cases in which myomata found upon inner spinal meninges developing from muscular fibres of arteries. *Pick*, ii. B-25.

True neurons of spinal cord found in three cases, always in spinal cords otherwise diseased. *Schlesinger*, ii. B-25.

Case of infiltrated tuberculosis of the spinal cord. *Haskovec*, ii. B-25.

TRAUMATIC DISEASES OF THE SPINAL CORD. Study of sixty-seven cases; functional symptoms of injuries to spinal cord more extensive than anatomical limits of injury would indicate. *Enderlen*, ii. B-51.

Symptoms of spinal sprain vary in duration according to age. The younger the individual, the more quickly he recovers. *Rhys Griffiths*, ii. B-51.

Case in which a fall resulted in complete paralysis. Temperature increased; pain between the shoulder-blades; not deemed advisable to operate; patient died next day; dislocation of fifth cervical, with compression of the cord, found. *Ch. H. Schoff*, ii. B-51.

Case of total compression of cord level of first dorsal vertebra, only ending in death on the eleventh day. Patellar reflexes absent. *Eggers*, ii. B-52.

Two cases of compression of the spinal cord through fracture of cervical segment. *Walton*, ii. B-52.

Three cases of Brown-Séquard's paralysis, in two of which were penetrating wounds of spine and in the other possibly a glioma. *Pearce Bailey*, ii. B-52.

Similar case. Myosis is always present when injury has affected the cervical portion of the cord. *Herter*, ii. B-52.

Symptoms of Brown-Séquard's paralysis in a case of concussion of cord. Dislocation of the iris on the same side. *Reynes*, ii. B-52.

Sayre's plaster-of-Paris jacket in treatment of traumatic lesions of the spinal cord. Good results may be expected when seat of fracture not above fourth cervical vertebra. Advisable at the same time to administer iodide of potassium internally. *Dennis*, ii. B-52.

[The experiments made by Schmaus and those of Bikeles, referred to last year, show clearly that after traumatic influences quite

SPINAL CORD, DISEASES OF (continued).

a variety of alterations may occur in the nervous system which very frequently require an exact and careful examination with the aid of the newest methods (of Nissl, Marchi, and others) in order that they may be recognized. As I have elsewhere asserted, though the teachings concerning the traumatic neurosis as a purely functional disease have contributed much to our knowledge of the subject of neuropathology, it is going too far to regard all cases formerly considered as concussions of the brain and spinal cord as purely functional. A considerable number should be eliminated from this category and referred to the class of neuropathies in which an anatomical alteration may be, at least partially, proven. It is also correct to speak of functional symptoms rather than of functional nervous diseases, which very frequently represent a disease type consisting of functional symptoms upon an anatomical basis. In the majority of apparently truly organic nervous diseases there is also a functional, psychical factor. In this way many wonderful recoveries from organic diseases of the brain (hemplegia, for instance) or of the spinal cord (tabes) by means of hypnotic suggestion or other equally powerful and efficient suggestive methods—as, for instance, the waters of Lourdes—are explained. H. Obersteiner, Assoc. Ed., ii. B-52, 53.]

Two cases of railway-spine, with autopsies. Although no alterations found in the spinal cord, finer methods of examination would have made them demonstrable. *Dercum*, ii. B-53.

[It is recommended that, in every examination of a spinal cord, the osmium stain, according to Marchi's method, be used, as this gives the best results as regards the finer changes in the nerve-fibres, always provided that the sections are still fairly fresh. H. Obersteiner, Assoc. Ed., ii. B-53.]

SPINE, SURGERY OF. (See also Pott's Disease; Scoliosis; Spina Bifida; Spina Bifida Occulta; Paraplegia.)

ABSCESS.

TREATMENT. Injection of iodoform into the sac after emptying it of pus, but powder should be washed in 1 to 20 solution of carbolic acid prior to insufflation. *Carless*, iii. A-58.

Pus removed by aspiration, cavity thoroughly washed out with 4-per-cent. solution of boric acid; 5 to 12 drachms of 10-per-cent. sol. of glycerin then introduced in cavity and left there. *Wieland*, iii. A-58.

Much scraping inadvisable; dissemination of sepsis encouraged. *Cheyne*, iii. A-58.

Main cavity may be dealt with actively and much loculated abscesses by aspiration. *Pick*, iii. A-58.

LAMINECTOMY. In infants spinal canal may be punctured in third or fourth lumbar space without risk of wounding cauda equina, and laminectomy performed under more satisfactory conditions than in adults. *Chipault and Daleine*, iii. A-52.

Dangers of laminectomy not great. *Thorburn*, iii. A-52.

Three cases illustrating the fact that extensive exposure of spinal cord does not offer great danger as regards life or subsequent strength of spinal column. *Stillman*, iii. A-53.

Flap method better than linear laminectomy. Horseshoe flap with convexity upward passing well up between two spines avoids pressure on scar. Primary and sound union in two cases. *Golding-Bird*, iii. A-53.

TRAUMATISMS OF VERTEBRÆ.

FRACTURE. Four out of ten cases of personal cases of fracture not due to direct violence. Symptoms not definite, but diagnosis may be assisted by following points: Clear history of direct violence; lateral mobility of one or more processes with obvious lesion of cord. Trephine indicated if any indications of pressure on the cord. If fracture below first lumbar, laminectomy valuable procedure. *Thorburn*, iii. A-54.

Exploratory incision the only means of ascertaining extent of injury, muscular covering preventing detection of usual symptoms of fracture-crepitation and abnormal mobility. *Biddle*, iii. A-54.

In fracture or dislocation of vertebræ imperative duty to perform laminectomy, to afford a chance of improvement. *Dundore*, iii. A-54.

Details of laminectomy. *H. C. Wyman*, iii. A-54.

Early operation only in exceptional cases; indicated when paralysis persists and there is evidence of fracture of the arch; warranted in lumbar fractures after a certain period has elapsed. *Goldscheider*, iii. A-55.

Operation indicated as soon as diagnosis is positively made. *W. J. Ferguson*, iii. A-55.

Favorable result in a personal case attributed to immediate operation. *Dawbarn*, iii. A-55.

In all cases with resulting paralysis, early operation, if any to be performed. *Wyeth*, iii. A-55.

Many cases occur without operation, hæmorrhage between dura and vertebræ or into parenchyma also contributing to paralysis. *Abbe Gerster*, iii. A-56.

Operation performed in two stages, with

an interval of eight days. Six vertebral arches removed. Recovery, but permanent use of corset indicated. *Salzer*, iii. A-56.

Successful cases of laminectomy. *Winnett*, *Enderlen*, *Ballance*, iii. A-56.

Expectant plan; late trephining and resection at a suitable moment. *Le Dentu*, iii. A-56.

In ordinary cases of injury extension should be tried for six or eight weeks. *V. Horsley*, iii. A-56.

Greater mobility of spine-fragments following laminectomy a reason for desisting from operative procedures, except when well-defined indications. *Pilcher*, iii. A-57.

Even the most unpromising cases of spinal traumatism, with or without compression, should immediately be subjected to extension and counter-extension and placed in Sayre's jacket. *Dennis*, iii. A-57.

Extension and plaster-of-Paris jacket should be given general trial. Extension most important part of procedure. *Abbe*, iii. A-57.

When the bodies of the vertebræ are intact, the strength of the spine not impaired by laminectomy. *Abbe*, iii. A-57, 58.

SPLEEN, DISEASES OF.

ENLARGEMENT. Case showing a very great number of supernumerary spleens. Of diagnostic import. *Albrecht*, i. K-43.

But seventeen cases of primary enlargement recorded. Case showing great weakness; tumor left side; enlarged abdomen. Frequent diarrhœa. Œdema of limbs toward end. No scrofula, syphilis, or malaria. Blood, 2,500,000 hæmatins; 30 to 33 per cent. hæmaglobin; 1 white to 350 red corpuscles. *Naguel*, i. K-43.

Case in subject of inherited syphilis. *Carslaw*, i. K-43.

FLOATING SPLEEN. Case in infant. Failed to thrive, puny, irritable. Large doses of quinine obtained improvement in general symptoms. *Proben*, i. K-42.

Four cases of movable spleen,—two successfully treated by splenectomy, other two by a bandage. *Hartmann*, iii. C-111, 112.

In case of movable spleen incision in median line, dissected peritoneum at level of eleventh and twelfth ribs, making a pocket in which the spleen was lodged. *Rydygier*, iii. C-112.

Successfully fixed spleen outside the peritoneal cavity in loose subperitoneal tissue. Peritoneum opened into bed prepared for it. Spleen simply fixed in a lumbar wound, latter then allowed to heal up. *Plücker*, *Kouwer*, iii. C-112, 113.

Splenectomy of spleen with very long pedicle twisted on its axis. *Runge*, iii. C-113.

RUPTURE. Case of supposed rupture following violent exertion. *Steudel*, i. K-42.

TUMORS.

CYSTS. Cysts rare and generally overlooked. Slowly-developed tumor left side; smooth, regular, conical, with base above; almost immobile during respiration. No ascites; general health good, though occasional febrile attacks of infectious origin. *Vivenza*, i. K-41.

Seven cases treated by splenectomy, five recovered; warns against tapping owing to high mortality. Removal without real disadvantage to individual. *Hahn*, iii. C-114.

Echinococcus removed from spleen by incision after jet of steam directed over subjacent tissue and made it bloodless; then tumor peeled from its surroundings by the finger. *Snegisjeff*, iii. C-114.

SARCOMA. Case of enormous endothelial sarcoma with hydatid cysts of liver. *Piccinino*, i. K-41.

Case of lymphosarcoma. *Acker*, i. K-42.

ANGIOMA. Case of angioma cavernosum; rarely observed. *Hoge*, i. K-41.

WOUNDS OF THE SPLEEN. Abdominal section to secure hæmostasis by deep suture in case of gunshot wound of spleen. A long needle threaded with silk, passed entirely through parallel with bullet-track; then tied over free border of organ to press surfaces of wound together tightly. Usual treatment for perforating wound of spleen is splenectomy. *L. McLane Tiffany*, iii. C-113, 114.

SPLENECTOMY. Cases showing inadvisability of splenectomy in hypertrophy of the spleen with leucocytosis and anæmia. Danger of fatal hæmorrhage. *Warbasse*, iii. C-109, 110.

Outlines of indications: Unjustifiable in leucocythæmia or where lymphatics involved; indicated in tumors, simple hypertrophies, or where there are pressure-symptoms causing suppressed function of any organ. *Noel*, iii. C-111.

Thrombosis of the mesenteric veins a cause of death after splenectomy. *Delatour*, iii. C-111.

Case in which dislocated spleen was mistaken for enlarged and displaced liver. *J. B. Roberts*, iii. C-111.

Death-rate of splenectomy (exclusive of leucocythæmia) had improved from 80 per cent. in the decade 1865–75 to 19.35 per cent. in 1885–95. *Spanton*, iii. C-111.

Removal of a spleen showing numerous tubercles, simultaneous pressure, and possible cause of an ulcer on the vulva. *Marriott*, iii. C-111.

Successful cases of splenectomy. *Ceci*, *J. Murphy*, iii. C-111.

SPRAINS.

TREATMENT. Local applications of coal-oil, 2 fluidounces; oil turpentine, 2

SPRAINS (continued).
fluidounces; ammonia-water, 1 fluidounce; tincture opium, 1 fluidounce. *J. H. Powell*, v. A-100.

[**Rest**: Absolute, with compression. (Velpeau.)

Massage: In severe cases massage fifteen minutes, night and morning, and splint to keep joint immovable during intervals. When joint proper not involved, twenty minutes' massage every thirty-six or forty-eight hours. Joint then washed with soap and water and wrapped in flannel bandage.

Cold or Warm Compresses: Warm bath (48° to 50° C.—118° to 120° F.) followed by massage during fifteen minutes; rubber bandage then applied. (Réclus.) In later stages, massage and cold douche. Ed.]

STAMMERING (DYSPHEMIA).
Psychical influences, as attention, reflection, etc., are sufficient to modify respiratory rhythm and to cause irregular contractions of diaphragm. Treatment of stuttering causes mental influences to disappear, together with troubles of articulation. *Gutzmann*, ii. A-19.

Fault lies in a paralysis of some part of articulatory or phonatory mechanism plus excessive activity or perhaps spasm of other parts. Treatment is twofold, generally tonic; out-door exercise, shower-baths, nerve-tonics. Vocal gymnastics: uttering simple vowel sounds, reading aloud, mastering every difficulty by slow and assiduous practice, etc. *Coxwell*, ii. A-20.

STOMACH, DISEASES OF. (See also Digestion, Disorders of; Gastric Ulcer; Hæmatemesis.)

DILATATION. Excessive secretion a factor besides muscular atony. *Mahomed*, i. C-21.

Section of vagus sufficient to produce atony and permanent dilatation in the dog. *Carion and Hallion*, i. C-21.

Case accompanied by physical signs of heart disease. *Hayem*, i. C-21.

Case in which death occurred in apparent uræmic coma. *Mongour*, i. C-21.

TREATMENT. When operation not practicable, diet calculated to lessen gastric labor and fermentation, lavage; remedies to excite motor functions and combat hyperacidity, pain, and constipation. Rectal alimentation if inanition. *Mathieu*, i. C-21.

Very fact of introducing tube in stomach a muscular tonic. *Curcton*, i. C-21.

GASTRITIS. Acute parenchymatous gastritis originates in glandular elements, and in pure form independent of leucocytic infiltration. *Hayem*, i. C-19.

Cases simulating glandular gastritis, but due to alcohol and tobacco. *Boas*, i. C-20.

Gastritis always a secondary condition; often due to tuberculosis. *Thomson*, i. C-20.

Primary atrophy of mucous membrane terminal stage of gastritis. *Schmidt*, i. C-20.

Cases of persistent absence of gastric secretion. Motility restored and recovery obtained in two, but failure of return of gastric juice. Atrophy of glands through continued inhibition worthy of consideration. *D. D. Stewart*, i. C-20, 21.

Hopeful prognosis in most cases. *Baruch*, i. C-21.

CANCER.

DIAGNOSIS. Timely diagnosis necessary for timely operation. To await the presence of palpable tumor is to wait too long. *Manges*, i. C-33.

Presence of lactic acid in Knorr's test-meal an early sign of cancer, though absence of the acid not necessarily indicative of the absence of the growth. *Boas*, i. C-33, 34.

Lactic acid in large quantities in cases of cancer with or without marked motor disturbance and free hydrochloric acid. In former case sarcinæ present, in latter absent. Slender bacillus grouped in chains, in gastric cancer with lactic acid. *Oppler*, i. C-34.

Lactic-acid micro-organisms constant in gastric cancer. *Turck*, i. C-34.

Lactic acid not formed during digestion in normal or diseased stomach except in cancer, when it is usually produced in great quantities. *Friedenwald*, i. C-34.

Concurrence of large number of authors. *Seelig*, *Pariser*, *Schüle*, *Strauss*, *and others*, i. C-34, 35.

Possibly due to production of lactic-acid enzyme through specific agency of carcinoma. *D. D. Stewart*, i. C-34.

Lactic acid in non-cancerous conditions. *Bial*, *Thayer*, *Rosenheim*, *Klemperer*, i. C-35.

Lactic acid found in 15 out of 18 cases of gastric cancer. Therefore not pathognomonic, but fairly reliable sign. *Klemperer*, i. C-35.

In cases of gastric contraction cancer certainly diagnosed when contents show constant deficiency of free hydrochloric acid, excess of lactic acid, and diminution of pepsin. *Hammerschlag*, i. C-35.

[Although regarding absence of hydrochloric acid as a diagnostic sign of great value, I have collected and reported, in connection with Leredde, twelve cases in which cancer of the stomach was accompanied by excess of hydrochloric acid. The size and situation of the cancerous growth afford an explanation for this; if it remain limited to the pyloric region, the greater part of the gastric mucous membrane is uninvolved and performs its functions normally; if, before the appearance of cancer, there were excess of hydrochloric acid, the condition will persist to the end; if the tumor almost completely involve the stomach, there will be

either absence or, at least, deficiency of acid. A. ROBIN, Assoc. Ed., i. C-36.]

Case in which hydrochloric acid was present with hæmorrhage, and cancer of stomach diagnosed. Autopsy revealed ulcer as large as a silver dollar on greater curvature, in proximity to pylorus. *Felty*, i. C-36.

Cases in which excess, then disappearance, of gastric juice characterized cancer. *Mathieu, Catrin*, i. C-36.

MEDICAL TREATMENT. Chlorate of sodium, 2½ to 4 drachms in 5 to 7 ounces of water, a dessertspoonful being taken several times a day to exercise continuous action upon growth. Appetite and nutrition improved, pain and vomiting diminished. *Huchard*, i. C-38, 39.

Small doses of methylene-blue, if begun early in 1- to 2-grain doses daily, rarely fails to improve patients. *A. Jacobi*, i. C-39.

SURGICAL TREATMENT. Resection the most perilous procedure, especially where it lasts several hours. Cases should be carefully chosen. Contra-indications: Extension of growth over half the stomach, extensive adhesions with liver and pancreas, implication of mesentery, metastases, and infiltration of the lymph-glands. When not possible to operate, washing out stomach regularly and treatment of symptoms, or palliative operation. *Rosenheim*, iii. C-6, 7.

Non-success of operations for carcinoma ascribed to weakness of patient. Important to improve general state by subcutaneous injections of saline solutions. When practicability of operation doubtful, very short abdominal incision. If operation inadvisable, small wound can easily be closed by sutures. *Mikulicz*, iii. C-7.

Six successful gastrotomies for cancer of cardiac end when complete ablation impossible. Ten gastro-enterostomies, with three deaths due to operative collapse. *Montaz*, iii. C-8.

Pylorectomy combined with gastro-enterostomy, 12 cases with 1 death; 7 new cases operated within eight months; so far no relapses. *Kocher*, iii. C-8.

Extirpation of stomach in a cat; digests food with exception of raw meat. Animal fatigued and depressed after its ingestion. Death by inanition six months after. *Pachon*, iii. C-8, 9.

Two instances of extirpation of the stomach in the human subject, one terminating successfully. *Langenbuch*, iii. C-9.

PYLORUS, STRICTURE OF. In non-malignant strictures of pylorus, graduated balls of gutta-percha coated with sugar given every morning; if it engage stricture somewhat closely, pain and inconvenience caused. Same-sized ball repeated morning by morning until it passes without discomfort, when another larger one substituted. Change needed about every five days. One case continued 810 days to dilate pylorus from 16 to 40 millimetres of circumference. *Ogston*, iii. C-15.

Gastric peristalsis not always due to pyloric stenosis. *Monro*, i. C-39.

TREATMENT. Small, frequent meals, kumyss or matzoon as lavage, then stomach-spray of 1 to 3 in 1000 solution of nitrate of silver. Rectal alimentation and water injections for thirst. Massage of gastric region, alkalies for acidity, galvanic current for pains. In cancerous stenosis, condurango for anorexia and chloral hydrate, tablespoonful of 3-per-cent. solution every two or three hours, for pain. *Einhorn*, i. C-40.

SURGICAL TREATMENT. Gastro-enterostomy in every case of pyloric stenosis with marked gastric dilatation. *Allingham*, iii. C-16, 17.

Pylorectomy or gastro-jejunostomy in severe non-malignant cases. *Bigaignon*, i. C-39.

Gastro-duodenostomy in cancer of the pylorus, using a Murphy button. Marked diminution of anastomotic opening as compared with size of original button. *Stewart*, iii. C-9.

Case of carcinoma in region of pylorus in which exploratory incision caused complete disappearance of intense local pain. *Mathieu and Quénu*, iii. C-9, 10.

Resection of pylorus only where tumor freely movable and there is no metastatic involvement. If these conditions not present, formation of a fistula between stomach and jejunum. *Klemm*, iii. C-10.

Survival for over four years after an operation for cancer of the pylorus. *Carthew, Davey*, iii. C-10.

Case from whom Mayal had removed the stomach five years previously. Able to digest any kind of food and follow his employment. *Porges*, iii. C-11.

RUMINATION. Three hereditary cases. Physiological anomaly most probably due to awakening of latent tendency to revert to ancestral type. *Runge*, i. C-49.

Two cases presenting history of imperfect mastication and deficiency of hydrochloric acid. *Riesman*, i. C-50.

TETANY. Two cases due to pyloric stenosis. Death in one from respiratory muscular spasm; improvement in the other under lavage. *Fenwick*, i. C-40.

Case of tetany with severe vomiting, without signs of dilatation or ulcer. *Barber*, i. C-40.

Due to reflex action of irritating contents and extension to all muscles of the body. *Fleiner*, i. C-40.

TUBERCULOSIS. Rarity of gastric tuberculous lesions explained by destructive action of gastric juice on Koch's bacillus. Nearly always secondary. Usual site of

STOMACH, DISEASES OF (continued). ulceration pylorus or great curvature. *Letorey*, i. C-40, 41.

Strumous dyspepsia of children very common, but escapes notice. History of tuberculosis, sudden pain in abdomen, characteristic symptoms; glandular enlargement, corneal ulcers. *Fenwick*, i. C-41 to 43.

UNUSUAL GASTRIC DISORDERS.

CONCRETIONS. Large calculus besides a pyloric ulcer found in man addicted to shellac-polish drinking. *Manasse*, i. C-44.

Two cases of shellac-polish calculi. *Langenbuch*, i. C-44.

HOUR-GLASS STOMACH. Case of supposed congenital hour-glass stomach. *Saake*, i. C-43.

Same condition found in case of incoercible vomiting with constipation. *Hirsch*, i. C-43.

INJURIES. Case of spontaneous laceration of apparently healthy stomach. *Brayn and Ridley*, i. C-43.

Case of rupture subsequent to wrestling. *Czernicki*, i. C-44.

VOMITING OF GASTRIC AFFECTIONS, NERVOUS.

TREATMENT. Tincture of iodine in ½- to 1-drop doses every one, two, or three hours, or arsenious acid $\frac{1}{30}$ to $\frac{1}{20}$ grain every two or three hours; or zinc valerianate, 12 to 20 grains daily in divided doses, with or without bismuth; or zinc oxide, ⅓ to 1 grain four to six times daily. *Jacobi*, i. C-45.

Potassium bichromate, $\frac{1}{12}$ to $\frac{1}{10}$ grain well diluted two or three times a day on empty stomach. *Marvin*, i. C-45.

Potassium bichromate recommended and classed as gastric tonic. *Bradbury*, i. C-45.

Faradization of pneumogastric nerves, 8 to 10 milliampères; care to slowly increase current on closing circuit and decrease it on turning current off. From one-fourth to one-half hour several times daily in severe cases. *Larat, Gautier, Champetier de Ribes, Bonnefin*, i. C-45.

STRICTURE. See URETHRA, DISEASES OF.

STRYCHNINE POISONING.

TREATMENT. Chloroform administered during six hours in a case of strychnine poisoning. Recovery. *W. Lloyd*, v. D-22.

Chloroform given in combination with apomorphine with beneficial results. *Worsley*, v. D-22.

One-sixth of a grain of pilocarpine hydrochlorate subcutaneously every three hours. Stomach washed with salt solution; chloral and veratrum viride by the rectum. Speedy recovery. *A. B. Oliver*, v. D-23.

[H. C. Wood, of Philadelphia, cautions against the use of the stomach-pump in strychnine poisoning, because of the danger of convulsions being excited by the effort to open the mouth and pass the tube. C. SUMNER WITHERSTINE, Assoc. Ed., v. D-23.]

STYE. See HORDEOLUM.

SULPHONAL POISONING.

Acute poisoning from 6½ drachms taken at one dose. Sound sleep for two nights and two days. Anorexia, gastric pains; persistent constipation lasting three days, nephritis lasting three days. Cardiac depression decided during first few hours. Obscured vision. *Hirsch*, v. D-23.

Fatal case in which kidneys found greatly congested and the epithelium of the tubuli contorti and tubuli recti affected. Diseased epithelial cells showing an irregular protoplasm which tended to become detached; necrosis of nucleus an important symptom. *Marthen*, v. D-23.

Case attended by arching of the feet due to irritation of the plantar branches of the post-tibial nerve. *W. Wright Hardwick*, v. D-23.

SUPRARENAL CAPSULES, DISEASES OF. (See also ADDISON'S DISEASE.)

Destruction of the capsules followed by auto-intoxication and profound alteration in chemistry of the blood, entailing, among other effects, degenerative changes in nervous and digestive systems and derangement of color-regulating metabolism. *Auld*, i. E-45, 46.

Extirpation causes death after a maximum lapse of two to four hours, confirming recent opinions of Fusari that suprarenal glands are nervous ganglia. *De Dominicis*, i. E-46.

De Dominicis's views disputed. *Boinet*, i. E-47.

Extirpation does not interfere adversely with the alimentary canal; glands not so essential to life as formerly supposed. *Pal*, i. E-46, 47.

Not absolutely necessary to life, provided neighboring nervous plexi are not injured. *Berdach*, i. E-47.

Experiments showing that dogs may live after removal of both suprarenals. *Lo Re*, i. E-47.

Removal of one gland in animals not followed by remarkable change, and recovery ensues. Removal of both glands ordinarily followed by death within twenty-four hours. *Zyboulski*, i. E-47.

Experiments on frogs showing antitoxic power of suprarenal tissue toward atropine. *Abelous*, i. E-48.

Intra-venous injections of the glycerinated extract of adrenals into frogs, guinea-pigs, and rabbits highly poisonous. *Gluzinsky*, i. E-48.

Specimens in which the suprarenal bodies intimately connected with kidneys. *Weinberg*, i. E-48.

Peculiar changes in suprarenal capsules in all cases of wasting. Suprarenal capsules among first organs to be attacked by degenerative changes. *Attlee*, i. E-48.

TUMORS. Tumors exceedingly rare. *Roger Williams*, i. E-51.

Two cases of adenomata. No symptoms of Addison's disease produced. *Rolleston*, i. E-52.

Large hæmatic cyst. Symptoms of Addison's disease absent. *Floersheim and Ourry*, i. E-52.

Case of sarcoma showing none of the symptoms of Addison's disease. *A. Caillé*, i. F-52.

Case with marked constipation, marked asthenia without apparent cause. At post-mortem both lungs tuberculous. Left adrenal caseous, right containing large calcareous mass; tubercle bacilli found. *Coleman*, i. E-52.

SYMPHYSIOTOMY. See Obstetrics.

SYPHILIS.

HISTORY. Notwithstanding all the labor bestowed upon the history of syphilis, its origin still shrouded in mystery. *Virchow*, iii. F-1.

Opinion that syphilis originated in America quite abandoned. *Paehmann*, iii. F-2.

BACTERIOLOGY. The streptobacillus discovered by Unna in the tissue of chancre is identical with the bacillus found by Ducrey in the pus. Slight differences in size explained by different stages of organism. *Ducrey, Krefting, Rivière, Mermel, Nicolle, Colombini, Andry, Dubreuilh and Unna*, iii. F-2, 3.

Two cases of suppurating, inguinal adenitis,—one in the course of acute urethritis, other in metrovaginitis. Pus from bubo in each case free from microbes; cultures from one remained sterile. *Gaucher, Sergent and Claude*, iii. F-4.

Ducrey's bacillus the pathogenic agent of soft chancre, but claims that it is not the direct cause of bubocs. *Eliasberg*, iii. F-4.

Conclusion that the substance or substances that produce the cirrhosis of syphilis probably hydrocarbons, more or less closely related, in chemical structure, to ethyl. *Griffin*, iii. F-4.

Chancre due to the syphilitic toxin alone. The secondary lesions are due to mixed infection, and the tertiary lesions are produced altogether by the toxin in an altered state. *Rigdon*, iii. F-4.

Lardaceous formation in the tissues, when occurring in association with active tertiary syphilitic manifestations, may be taken as additional evidence that active tertiary syphilitic manifestations are caused by the presence of a specific microbe at the site of the lesion. *Weber*, iii. F-4 to 6.

[The clinical evidence still seems to be almost conclusive of the absence of a specific microbe in the tertiary lesions of syphilis. Their non-contagiousness and non-transmissibility by inoculation or by heredity, their want of symmetry, etc., strongly differentiate them from the earlier lesions of syphilis and from the whole group of diseases due to existing and active microbic infection. It is, of course, not impossible that some forms of bacterial life may be found in or near gummata, nor should it be dogmatically asserted that these microbes cannot be the essential cause of tertiary phenomena; but that they are always present or are essential has certainly not been proven. J. William White, Assoc. Ed., iii. F-6.]

METHODS OF CONTAMINATION. Case of a mother infected with primary syphilis from own syphilitic child. This case an exception to Colles's law. *Lucas*, iii. F-6, 7.

[The alleged chancres were, possibly, ulcerating mucous patches, and the source of infection was, at any rate, in all probability not the child. The literature of syphilis is full of these loosely observed and carelessly reported cases, very few of which are worthy of credence. When a general practitioner thinks he has a case of exception to Colles's law his first step should be to call a consultation of the most expert syphilographers available and ask for their help in an exhaustive and scientific investigation of all the phenomena. When this is done all over the world we shall have data for estimating the frequency of true exceptions to this practically invariable law. J. William White, Assoc. Ed., iii. F-7.]

No conclusion whatever can be drawn from such an incomplete case as that described by Lucas. *Ogilvie*, iii. F-7.

Up to the present no case quoted which, upon thorough investigation, proved an exception to Colles's law. *Cotterell*, iii. F-7.

Case in a wet-nurse whose own child became ill with undoubted syphilis. She again suckled it at the breast and contracted the disease. Case of a woman who gave birth to a syphilitic child and who did not exhibit the slightest trace of syphilis. *Feulard*, iii. F-8.

Examination of mother in such cases shows that the lesions are not so recent as if the disease were acquired from the fœtus. *Szadek*, iii. F-8.

Text-books teach that no physiological secretion from a syphilitic patient possesses specific virulence. Product of the testicle is not a product of secretion, nor is the testicle a gland; hence semen not a product of secretion and probably does not possess benign nature of glandular secretions. *D'Aulnay*, iii. F-8, 9.

SYPHILIS (continued).

[It has been abundantly proven that the semen of syphilitics is not inoculable in the absence of mucous patches of the urethra or other suppurating or ulcerative lesions. The fact that it can convey the disease through the spermatozoa is one of the mysteries of heredity as yet unsolved. But, as regards all other forms of transmission, the semen is as innocuous as the tears or the milk. J. WILLIAM WHITE, Assoc. Ed., iii. F-9.]

Series of ten cases of syphilis acquired in childbed exhibiting tertiary phenomena. All had been delivered by the same midwife, who had been inoculated on the hand with syphilis while nursing a prostitute. *F. D. Fisher*, iii. E-9.

Transmission of syphilis by tattooing, in seven soldiers who had been tattooed by a comrade having mucous patches in the mouth. *Bergasse*, iii. F-9, 10.

Epidemics of syphilis in soldiers produced by tattooers. *Tardieu and Robert Cheinisse*, iii. F-10.

The gravity of professional syphilis in physicians demonstrated to be due to three causes: 1. Patient morally depressed because he understands its seriousness. 2. He is almost always overworked, intellectually and physically. 3. He generally makes a bad patient. *Fournier*, iii. F-10.

Extra-genital chancre of the knee in a child, 4 years old, at the site of an abrasion due to adhesive plaster moistened with the tongue of a syphilitic woman. Syphilis contracted in a bathing establishment by using a hair-glove. Contagion may also occur through mending linen of syphilitic patients. *Fournier*, iii. F-10.

Flies and fleas may serve as vehicles of infection; demonstrated by an experiment. *Archives of Surgery*, iii. F-10, 11.

Case antagonizing theory that syphilis is not transmissible after four or five years. *Dowd*, iii. F-11.

[A few cases of late transmission of syphilis have been reported by competent observers,—Landouzy, Fournier, Hardy, and others,—but they are so rare that even their testimony is to be regarded with suspicion, not of their truthfulness, of course, but of the correctness of the premises from which they argued. I have never seen a case of direct transmission or of transmission by inheritance occurring after five years from the time of the infection. J. WILLIAM WHITE, Assoc. Ed., iii. F-11, 12.]

Three cases of auto-inoculation of chancre. *S. Holth*, iii. F-12.

Case of syphilitic re-infection: a hard chancre with inguinal bubo, secondary accidents; tertiary accidents, a new, hard chancre, characteristic adenopathy, mucous patches. *Eraud*, iii. F-12.

PRIMARY SYPHILIS. Case of chancre-like gonorrhœal erosion,—a sore extending around the orifice of the meatus, red, grayish-yellow, or opaline, painful during micturition. Borated baths, boric-acid ointment, after each micturition. *Leloir*, iii. F-12.

Case of urethral chancroid. No other lesion in the urethra. Healed readily under astringent applications. *Swinburne*, iii. F-13.

In pseudochancre there is no characteristic sign. Only the advent of other syphilitic symptoms enables us to form an opinion. Almost all the alleged cases of syphilitic re-infection are doubtful. *Gottheil*, iii. F-13.

Study of the stigmata of primary syphilis based on an examination of 600 prostitutes. End of second year all lesions become modified and tend to disappear rapidly, except leucoderma. *Palmer*, iii. F-13, 14.

Case of multiple chancres. *Tilden Brown*, iii. F-14.

In some cases of supposed multiple chancres, lesions merely the result of a simple, inflammatory process. *R. W. Taylor*, iii. F-14.

Pathological investigations thus far have disclosed nothing absolutely characteristic about initial lesion of syphilis. *Fordyce*, iii. F-14.

One of the characteristics of syphilitic lesion is that inflammatory process rapidly extends along the course of the vessels surrounding them with a coat-sleeve-like arrangement. *Taylor*, iii. F-14.

[The microscopical diagnosis between chancre and any chronic inflammatory lesion with round-cell infiltration is at present practically impossible. I have endeavored in this manner to forecast the character of doubtful sores in cases of non-venereal origin, but have come to believe that at present neither the gross appearance, the microscopical section after removal of the sore, nor the culture of its discharge will afford a sound basis for diagnosis. Time alone furnishes this, in some of these cases, by developing the lymphangitis and adenopathy, which are conclusive. J. WILLIAM WHITE, Assoc. Ed., iii. F-14, 15.]

A case of syphilitic chancre without inguinal adenopathy. *Petrini*, iii. F-15.

In Palermo soft chancres and buboes chiefly observed during hottest six months. *Mastrosimone*, iii. F-15.

EXTRA-GENITAL CHANCRE. Extra-genital chancre may present at times unusual features of gravity same as syphilis of genital origin. Depends much less on localization than on condition of patient. *Fournier*, iii. F-15.

Case in which primary lesion situated on the back over tenth rib. *Voll*, iii. F-15.

Case of syphilitic chancre of the eyelid. *Hinshelwood*, iii. F-15.

Case of double hard chancre of the upper eyelid. *Coppez*, iii. F-15.

Four cases of chancre of the tongue. *Shober*, iii. F-15.

Case of chancroid of the outer surface of a finger of right hand. Ulnar gland enlarged and painful on pressure. Bubo yielded to iodine. *Kopytowski*, iii. F-15.

Table giving all cases of extra-genital chancre of both sexes published during the past few years. *D'Aulnay*, iii. F-15 to 19.

[It is a fact that in many instances extra-genital chancres are followed by exceptionally severe forms of syphilis. I have observed this in a number of cases in medical men, who have certainly not done so well, on the average, as my non-medical syphilitics. I have attributed this to the well-known intractability of physicians when asked to play the rôle of patients. The above considerations did not apply in their cases. The prevalence of the opinion that "syphilis insontium" is usually of a grave type indicates the need for further observations on the subject. J. WILLIAM WHITE, Assoc. Ed., iii. F-19.]

SECONDARY MANIFESTATIONS. A large chancre may be accompanied by an adenitis of medium intensity; a slight tumefaction of glands may accompany syphilides in secondary stage. Generalized and extensive adenopathy may co-exist with insignificant manifestations in the skin; arises from fact that adenopathy not so much a sign of intensity of infection as of vigor with which organism resists infection. Hence of prognostic value. *Augagneur*, iii. F-19, 20.

Tumefaction of the spleen one of first accidents of secondary period, coincident with adenopathy. These two symptoms enable a diagnosis to be made before appearance of cutaneous or mucous syphilides. *Colombini*, iii. F-20.

Durable stigmata of secondary syphilis. First sign syphilitic chancre cicatrix, more frequently found in men than in women. Second sign that of syphilitic leucoderma, more frequently in women than in men. *Bayet*, iii. F-20.

Mistake to suppose that secondary eruptions can always be recognized by their own special characters. Leading diagnostic points: 1. Outbreak symmetrically arranged. 2. Often polymorphous,—*i.e.*, scaly, papular, lichenoid, etc., at the same time. 3. Show preference for abdomen, front of chest, bend of elbow, front of forearm, and face. 4. Dusky hue and coppery tint. *Jonathan Hutchinson*, iii. F-20, 21.

[The absence of subjective sensations—itching, burning, etc.—should not be omitted from this list. It is quite as valuable a differential point when the diagnosis rests between syphilis and any form of dermatitis as most of those mentioned. The absence of scratch-marks, for example, in a patient with a wide-spread papulo-squamous eruption, is, to my mind, always a valuable help in arriving at a conclusion if the case is doubtful. Of course, the therapeutic test will usually be conclusive; but generalization, symmetry, regularity of evolution, polymorphism, rounded outlines, dullness of hue, and absence of pain and itching will usually make the diagnosis certain in advance of treatment. J. WILLIAM WHITE, Assoc. Ed., iii. F-21.]

Two patients illustrating ulcerative forms of secondary syphilis. *Cathcart*, iii. F-21, 22.

Case of secondary syphilis complaining of an enormous appetite,—a rather rare feature of the disease in men. *Fournier*, iii. F-22.

TERTIARY MANIFESTATIONS. Of 100 cases of syphilis not more than 20 and certainly not less than 5 developed bad tertiary symptoms. Once tertiary symptoms appear, recurrence is the rule. May be perpetuated indefinitely. *Mauriac*, iii. F-22.

Doubt whether Hutchinson's teeth may not be met with in patients who acquired disease soon after birth. Conclusive illustrative case. *Welander*, iii. F-22, 23.

Tertiary manifestations of syphilis produced by an organized virus. General causes which favor persistence of virus are alcohol, marasmus, malaria, etc., which diminish power of resistance; but real and most potent etiological factor in the production of tertiary symptoms is the lack of proper mercurial treatment in the early period. *Neisser*, iii. F-23.

Cell infiltrations dating from the early stage, when mechanically or chemically irritated, give rise to proliferation and consequent tertiary symptoms in the skin, the mucous membranes, the bones, and internal organs. *Neumann*, iii. F-23.

[I have always been much struck with the very distinct relation between minor traumatisms and other forms of local irritation and the development of tertiary phenomena. The seats of predilection of the periosteal nodes, for example, are almost identical with those portions of the skeleton that are subcutaneous,—the skin, the cranium, the clavicle, the sternum, etc.,—and I believe that, if it were possible to get at the facts, it would be found that the localization of tertiary lesions in the viscera was determined by precedent conditions of congestion or of irritation. Neumann's view is certainly more in accord with the clinical facts than that which invokes an active microbic infection to explain them. J. WILLIAM WHITE, Assoc. Ed., iii. F-23, 24.]

Concordance with Fournier that forms of late syphilis, papulo-tuberculous syphilide,

SYPHILIS (continued).
syphilitic lupus, etc., should be classed under cutaneous gummata. *Renault*, iii. F-24.

Gummata of the vagina very rare, but they do occur. Illustrative case presenting also serpiginous syphilides of abdomen. Second case of gumma in the upper part of vagina, involving clitoris and vestibule. *Fournier*, iii. F-24, 25.

Liability of mistaking the enlargement of subcutaneous lymphatic glands of tertiary period for leukæmia or lymphadenoma or tuberculosis. Illustrative cases. *Montgomery*, iii. F-25.

Diffuse syphilitic mastitis may occur in men in the secondary or tertiary period. *Rouanet*, iii. F-25.

GENERAL SYSTEMIC MANIFESTATIONS. Syphilis of nervous system not different from that of syphilis of any other part of the body, except as it is impressed by histological peculiarities of parts involved. *Collins*, iii. F-25, 26.

Tendency still prevails to accept previous history of syphilis as sufficient evidence of specific nature of a nervous affection, however remote its onset may be from the time of infection, or from the time of the last undoubted manifestation of syphilis. *Ogilvie*, iii. F-26.

Certain groups of diseases of the nervous system at comparatively early period of the disease occur by far most frequently during the period at which the disease is distinctly capable of communication and transmission. Occurrence of these diseases during the secondary stage of syphilis known. Affections may occur at all periods of the disease, without any marked predilection for this or that particular period. *J. Hutchinson*, *Ogilvie*, *Ferrier*, iii. F-26, 27.

[There appears to be some reason for thinking that, while syphilis in general is becoming both milder and less frequent, the proportion of syphilitics who develop nervous phenomena is increasing. If this be true, it is probably due to the worry and excitement and nervous strain of modern life. The same factors would certainly tend, in accordance with the general principle of localization of syphilitic lesions (which are strongly influenced at any period by irritation of any form), to direct toward the nervous system the manifestations of secondary syphilis. It is quite possible, therefore, that both the older and the later views are correctly stated. Formerly nervous syphilis developed as a tertiary phenomenon when the disorders of advancing years offered the opportunity. Now other forms of irritation or of threatened degeneration predispose at an earlier period to the same localization of the disease in the nervous system. At any rate, the clinical fact is undeniable, and it does not due to assume that because a given nerve-lesion occurs within a year or two of the chancre that it cannot be syphilitic. J. William White, Assoc. Ed., iii. F-27.]

Inclined to regard tabes and other tertiary lesions as caused by some chemical product of the syphilitic microbe left behind after it had disappeared from the blood. *Gowers*, iii. F-27.

Injections of streptococci and production of myelitis in 6 per cent. of cases. Four instances of complete paraplegia. Careful search failed to show microbes in the cord, easily found in the blood. *Vidal and Bezançon*, iii. F-28.

Predisposing tendencies on the existence of a place of least resistance probably favors the action of special poison and renders cord peculiarly vulnerable to many different foes. *Putnam*, iii. F-28.

Case of a girl suffering from severe syphilis attacked by intense pain on the left side of the chest and arm; after admission eruption over painful area resembling zona. *Jullien*, iii. F-28, 29.

Case suddenly affected with bilateral amaurosis, without any other cerebral symptom except cephalalgia. Treatment by mercury and iodides caused return of vision, external superior hemianopsia persisting. *Evetsky*, iii. F-29.

Early syphilitic jaundice occurring when early skin-lesions present distinguished from simple icterus by its sudden appearance without previous gastric symptoms. Mercurial treatment causes rapid improvement. Forty-six recorded cases. *O. Lasch*, iii. F-29, 30.

Of earlier exanthematous syphilides, none can be clearly diagnosed on the cervix or vagina above the vulva except mucous papillary growths. Gummata are most usually seen in introitus and lower third of vagina. Recurrence locally very frequent. Syphilis of tube and ovary rare complication. *Neumann*, iii. F-30.

PARASYPHILITIC AFFECTIONS. Trouble occurring in the course of syphilis which, while undoubtedly depending on the syphilis for their origin, are in the strictest sense not of a specific nature. 1. In acquired syphilis; leucoderma syphiliticum; acute hystero-neurasthenia; second stage neurasthenic manifestations; hystero-syphilis; tabes; general paralysis, etc. 2. In hereditary syphilis; dystrophic affections; malformations, especially of teeth; imbecility; rachitis; hydrocephalus, etc. *Fournier*, iii. F-30, 31.

HEREDITARY SYPHILIS.

DIAGNOSIS. Children apparently healthy, but of syphilitic parents, sometimes show no other sign of the disease than a rapid and considerable loss of weight;

alimentary curve characterized by a long and almost vertical line of rapid descent. *Pouzol*, iii. F-31.

Lineal cicatrices about mouth, resulting from ulcerative syphilitic processes a characteristic sign. No other process gives rise to similar scars. Useful in distinguishing early from late congenital syphilis. *Krisowski*, iii. F-32.

[These scars are very commonly the result of intra-uterine syphilis. When superficial and fine they are probably due to ulcerating mucous patches which have undergone cicatrization. When deeper and more extensive they may have been preceded by actual gummata,—as the child is occasionally born with well-marked tertiary lesions. In any event, as the author states, they are valuable diagnostic signs. J. WILLIAM WHITE, Assoc. Ed., iii. F-32.]

LATE HEREDITARY SYPHILIS. Case of delayed inherited syphilis in a man of 36 years. *T. Robinson*, iii. F-32.

[I have seen one such case which I believe would bear criticism, typical gummata developing in an adult (35 years of age), the circumstances being such that the possibility of any acquired infection might fairly and positively be set aside. Nothing procured healing of the gummatous ulcers, whose character was long unsuspected, except the administratiou of the mixed treatment. J. WILLIAM WHITE, Assoc. Ed., iii. F-33.]

Case of hereditary syphilis in a man of 26 years, in whom all the signs of hereditary syphilis were present: destruction of nasal structure, etc. *Nobl*, iii. F-33.

Three cases in mother, daughter, and granddaughter. *Gastou*, iii. F-33.

Alterations of bones, teeth, etc., and other disturbances in children of syphilitic parents are not syphilitic in nature, but syphilitic in origin. May be produced by other infections. *Fournier*, iii. F-33.

Misleading history sometimes obtained in cases show the necessity of great care in the study of antecedents of patients. *Lewin*, iii. F-33, 34.

Case of simulation of osteitis deformans in congenital syphilis. *Jonathan Hutchinson*, iii. F-34.

ATYPICAL CASES. Syphilitic perforation through the hard palate in a 3-month-old child. *Genser*, iii. F-34.

Rare annular congenital syphilide in a child 15 months old. *Carpenter*, iii. F-34, 35.

Unusual manifestations of hereditary syphilis. Case of pemphigus of plantar and palmar regions. Syphilitic gummata on buttocks, thighs, and legs. Frequent absence of eyebrows and eyelashes, and alopecia. *André Moussous*, iii. F-35.

Two cases in which paresis thought to have occurred as result of hereditary syphilis. In a very large proportion of cases adult paresis due to syphilis. *Fournier*, iii. F-35.

Two cases of congenital spasmodic tabes; fathers of both children syphilitic. In both, specific treatment seemed to produce notable improvement. *Fournier and Gilles de la Tourette*, iii. F-36.

[Perhaps the most interesting relation of hereditary syphilis to nervous troubles is in respect of epilepsy. Jackson and others have conclusively demonstrated a definite influence in that direction, and are strongly disposed to extend the field of observation and of the practical management of that disease along the same lines as locomotor ataxy, general paresis, and other nerve troubles now known to be frequently of specific origin. The advice, in every case of epilepsy without obvious local cause, to examine both the patient and all the members of the family for signs of syphilis, is sound. J. WILLIAM WHITE, Assoc. Ed., iii. F-36.]

A case of skull deformity from inherited syphilis in a child: flattened, sunken nose, besides double otitis media, notched teeth, and sword-blade tibiæ. *Charles E. Nammack*, iii. F-36.

Autopsy of child presenting osteitis of bones of right ear, thrombosis in arteries of circle of Willis, osseous ulcerations upon inner surface of cranial bones; skull-plate thin, perforated, worm-eaten, caused by hereditary syphilis. *Haushalter*, iii. F-37.

Nephritis in a syphilitic infant of eight weeks. *Hock*, iii. F-37.

SYPHILIS AND MARRIAGE. Liberal sexual intercourse often following marriage, usually preceded by a long period of abstinence, prone to relight old chancres. *Hutchinson*, iii. F-37, 38.

Lapse of time that ought to intervene between a syphilitic infection and marriage depends. If patient has become proof against further mercurial action, no length of time will render him perfectly safe. If he has gone early through a proper course of mercury, he may marry at any time. *Henry Lee*, iii. F-38.

[Nothing that I know of warrants this sort of teaching. Time is of more importance than treatment. It would hardly be an exaggeration to say that five years without treatment make it more improbable that a man will infect his wife or procreate syphilitic offspring than two years with treatment. Time and treatment should be conjoined, however, before consent to marriage is given,—four years should have elapsed after infection and two to two and one-half years of that time should have been spent under active treatment. I have never known of an instance in which, this

SYPHILIS (continued).

rule having been observed, any trouble has resulted from marriage. J. WILLIAM WHITE, iii. F-38.]

TREATMENT OF SYPHILIS. 1. Progressive syphilis not treated with mercury causes diminution of hæmoglobin and of red corpuscles. 2. If with mercury from the first day there is increase of hæmoglobin and red corpuscles. 3. If mercurial treatment continued longer than necessary mercury loses its specific power; its toxic action produces a diminution of hæmoglobin and red corpuscles. *Semmola*, iii. F-38, 39.

1. In untreated syphilis diminution of hæmoglobin varies with severity of disease. 2. Sudden diminution of hæmoglobin follows inunction or injection of a large dose of mercury. 3. Cure of syphilitic lesions by mercury begins when fall of hæmoglobin ceases, and is followed by a rise. *Justus*, iii. F-38, 39.

Study of 1048 cases. Syphilis to be treated symptomatically and not preventively, nor by Fournier's chronic intermittent method. In primary stage local treatment and extirpation in some cases. Inunction in œdema of prepuce and phimosis or in urethral form. General treatment when skin-eruption. Tertiary symptoms in only 10 per cent. of cases thus treated. *Neumann*, iii. F-39, 40.

Not shown definitely that Fournier's chronic intermittent method protects any better from tertiary symptoms than other methods, while persistent and energetic dosage with mercury is accompanied by unjustifiable risks. Symptomatic treatment in mild secondary forms. If secondary or tertiary symptoms develop, Fournier's method indicated. *Caspary*, iii. F-40.

Mercurial treatment must be begun as soon as diagnosis is certain. It must be applied with great energy, carried out for a long time,—generally for more than three years,—alternating energetic and mild courses separated by sufficient intervals. Mercury the sole remedy which attacks the syphilitic virus itself. Preparations of iodine have only power of influencing syphilitic products and almost exclusively those of the tertiary period. *Neisser*, iii. F-40, 41.

Reasons for not admitting subcutaneous injection method, excepting as a method for unusual cases are syncope at the moment the injection is made; persistent pains after formation of an inflammatory zone; muscular paralyses, long-continued abscesses, etc. The only indication is failure of inunctions. *Augagneur*, iii. F-41.

Real and very rapid efficacy of method recognized, but too painful to be adopted as a unique measure. *Thiberge*, iii. F-41.

Usual method of administering mercury by digestive tube untrustworthy; quantity of mercury absorbed is never known. Mercury reaches portal vein, then the liver, and prepares alterations of this organ which attenuate action of mercury; this is avoided when mercury administered subcutaneously. Accidents published due to errors on part of physicians who have not properly employed the method. *Jullien*, iii. F-41, 42.

[The subcutaneous use of mercurials is gradually finding its proper place in the treatment of syphilis. I cannot believe that it will ever come to be the routine method. It is of undoubted value where other plans have failed, in emergencies, and in certain so-called malignant cases. It is a relief to find the literature of the subject diminishing, the extravagant claims of unveracious or unbalanced advocates lessening in number, and the whole method assuming a well-recognized, but strictly limited, position in the therapeutics of syphilis. J. WILLIAM WHITE, Assoc. Ed., iii. F-42.]

Formula of Balzer for subcutaneous method: calomel, 15 grains; vaselin, $2\frac{1}{2}$ drachms; for ten injections. Substances must be carefully purified, recipient containing them rigorously aseptic. Syringes and cannula must be boiled, skin scrubbed and washed with soap, then with corrosive sublimate, then with ether. Mixture injected deeply into muscles of external iliac fossa, about two inches from crest, and puncture closed with collodion. No intoxication, no salivation of kidneys if in good condition, and gums healthy. No phlegmon, provided injection be made at home of patient and latter remains quiet a day or two. *Jullien*, iii. F-42, 43.

Calomel injections used in private practice; excellent results in every case. Seven-eighths grain of calomel in 15 minims of sterilized oil. *Feulard*, iii. F-43.

Injection of calomel-oil in forty cases; results often far beyond expectations. *M. Hirschberg*, iii. F-43.

Intra-venous injections of mercuric chloride. Baccelli's method. Advantages so far overbalance objections that the treatment should be considered as the most successful. Especial value in obstinate cases resisting other treatment or in advanced cases of organic syphilis. *Walter L. Pyle*, iii. F-43.

Baccelli's method employed in a case which proved rebellious to usual treatment. Although results not rapidly obtained, change for better finally occurred. *R. Hogner*, iii. F-43.

Intra-venous injections of corrosive sublimate in a case of cerebral syphilis. Treated without result by intra-muscular injections of gray oil and iodides internally. Sixteen injections. Epileptic attacks ceased after second injection. *Bruni*, iii. F-43, 44.

Baccelli's method far superior to internal medication or injections. After ten or twelve

injections walls of vessel appear to thicken and harden. In such case injections to be made in some other region. *Porcelli*, iii. F-44.

Method praised. Fifteen minims of a 1-per-cent. solution of cyanide of mercury (representing $\frac{1}{5}$ grain) injected with glass syringe perfectly sterilized. Arm bound about middle with handkerchief; vessels of forearm below swell, vein selected; part to be pricked sterilized; needle passed through flame, then introduced gently in oblique direction, almost horizontally following axis of vessel. Handkerchief removed, piston slowly pushed down; light antiseptic dressing. Patients appear to feel nothing. An injection every other day for three weeks; treatment stopped for a fortnight and renewed if necessary. *Abadie*, iii. F-44.

Treatment suited to cases in which it is desirable to avoid large quantities of mercury. Baccelli's method shows how small a quantity of mercury suffices to cause disappearance of syphilitic manifestations. *Blaschko*, iii. F-45.

Intra-venous injections of mercury will probably never supplant inunction or intra-muscular injection methods, because technique difficult; danger of thrombosis great, sequelæ more likely to occur. *Dinkler*, iii. F-45.

[We shall probably have to go through the same experience as to intra-venous mercurial injections that we are just concluding with regard to hypodermatic injections. It is to be hoped that the period will be briefer and the early accounts of the results obtained less incredible. J. WILLIAM WHITE, Assoc. Ed., iii. F-45.]

Percentages of albuminuria in different forms of treatment: with sublimate injection, 4 per cent.; with inunction treatment, 28 per cent.; inunction and injection of sublimate, 17 per cent. *Heller*, iii. F-45, 46.

Recommendation never to use mercurial frictions and iodide of potassium simultaneously, as iodide of mercury might form in organism. This salt irritates the kidney very much. Case of "néphrite foudroyante" following injection of salicylate of mercury. *Lewin*, iii. F-46.

Case of nephritis following inunction of mercury. *Saalfeld*, iii. F-46.

One per cent. solution of mercury succinimide and cocaine muriate in distilled water recommended. Each injection contains $\frac{1}{6}$ grain; generally well borne; cocaine to prevent pain. *Vollert*, iii. F-46.

A new remedy, hæmolum hydrargyro-iodatum, containing 13 per cent. of mercury, 28 per cent. of iodine. Obtained by mixing neutralized blood of warm-blooded animals with water and zinc powder; should be preferred to all other mercurial preparations. *Rille*, iii. F-46.

When dermatoses present, applications of calomel, $6\frac{1}{2}$ drachms; traumaticin, $2\frac{1}{2}$ ounces, with camel's hair brush, to large part of back first day, chest two days later, thighs two days afterward, then buttocks, returning again to trunk. Three applications a week. Corresponds to treatment by pills, but does not interfere with digestive functions. Less active than inunctions. Dermatoses disappear in three weeks. *Jullien*, iii. F-46, 47.

Secondary symptoms disappear in from twenty to thirty days after five or six such applications. *Cauchard*, iii. F-47.

SERUM-THERAPY. While number of experiments has been comparatively small, results have been negative in too many instances to make the issue of treatment anything else but problematical. *Raymond*, iii. F-47.

[While the serum-therapy of syphilis is of the greatest scientific interest, viewed as a branch of the investigation into the value of other kinds of serum taken from immune animals or artificially impregnated with various toxins, it must not be forgotten that the therapeutics of syphilis are to-day most satisfactory. By the judicious use of mercurials and careful attention to hygiene the average results obtained in syphilis will compare favorably with those secured in any other generalized disease presumably due to microbic infection. We can, therefore, well afford to go slowly in the adoption of hypodermatic methods, or intra-venous injections, or serum-therapy, and can expect to cure, without recourse to them, about 95 per cent. of all patients. Let us hope that among these methods the other 5 per cent. may find equally certain and satisfactory means of relief. J. WILLIAM WHITE, Assoc. Ed., iii. F-47.]

Serum obtained from blood of a horse tried in twenty patients. In four cases slight urticaria. Treatment seemed to produce a more rapid disappearance of the primary sore and cutaneous lesions. Preliminary report. *Bernard E. Vaughan*, iii. F-48, 49.

Injections of dog's serum recommended. In two cases not amenable to specific treatment serum quickly transformed general condition and paved the way for an efficacious application of ordinary specific treatment. *Héricourt and Richet*, iii. F-49.

Serum of blood, chancres, and papules, obtained from persons suffering from primary and secondary syphilis, injected into animals to increase natural antagonism of their blood to syphilitic poison. Some cases treated with this serum show marked improvement, others appear to be uninfluenced. Further researches in progress. *Gilbert and Fournier*, iii. F-49.

Eighteen cases of syphilis treated by injection of serum of blood of patients who

SYPHILIS (continued).
had gone through an attack of syphilis and had been rendered immune. In the early stage injections caused the sore to heal rapidly. When the rash and throat-symptoms developed the dermatose faded rapidly, but throat-symptoms disappeared slowly. Serum from a case of well-marked secondary syphilis appears more active than that obtained from a tertiary one. *Cotterell*, iii. F-49.

Case of severe syphilis cured by ingestion of thyroid gland. Thirty grains progressively increased by same amount until 3½ drachms taken at a dose. Every second day treatment interrupted twenty-four hours. *Guladze*, iii. F-49, 50.

Formalin as efficacious as carbolic acid in cases of soft chancre; causes some pain, but destroys virus with remarkable rapidity. Within twelve hours chancre becomes dry. A single application sometimes sufficient; applied with cotton pledget fastened to a holder. *E. R. Frank*, iii. F-50.

Disagreeable odor of iodoform causes women affected with soft sores often to neglect to apply it. Best treatment immediate cauterization with phenol. Genitalia well cleansed first with sublimate. *Von Herff*, iii. F-50.

Iodine exerts an action not upon syphilitic virus, but upon the syphilitic toxin products. Iodol tried in a number of cases with very good results; daily doses of 30 to 60 grains. Remedy well borne; useful substitute for iodide of potassium. *Szadek*, iii. F-50.

Belief that curative effects of mercurials are due to irritating action exercised at site of syphilitic lesion similar to that of tuberculin over tuberculous lesions. Venice turpentine tried in fifty-two cases; encouraging results. *A. Jarisch*, iii. F-50.

For buccal lesions application of a 10-percent. solution of chromic acid, immediately followed by cauterization with nitrate of silver. Much more efficacious than either of these agents used alone. Excellent results in soft chancre and vegetations. *Boeck*, iii. F-50.

SYRINGOMYELIA.

ETIOLOGY AND PATHOLOGY. Fifty personally-observed cases. Anomalies of muscular sinus frequent. Symptoms arising from medulla oblongata much more frequent than has generally been accepted. Demonstrated in about one-third of the cases. In majority of cases disease of the vessels plays a co-ordinate rôle to that of the central gliosis. *Schlesinger*, ii. B-26.

Changes in posterior columns very frequently present; affect principally that section which in tabes either remains entirely free or longest unaffected. *Schlesinger*, ii. B-27.

In a child with asphyxia following difficult labor and which died shortly after, numerous slight hæmorrhages found in the posterior horns of spinal cord, and a more pronounced hæmorrhage in medulla, which occupied precisely the situation in which the fissure is always found in bulbar syringomyelia. *Schultze*, ii. B-27.

Case in which there was a steadily progressing softening of the central canal consequent upon an abnormal transudation caused by chronic vascular engorgement. *Straub*, ii. B-28.

Eleven new cases, of which only one was accompanied by autopsy. *Berndl*, ii. B-28.

Case of syringomyelia the result of a trauma. *Richstein*, ii. B-28.

Case of unilateral facial atrophy in syringomyelitis. *Dejerine and Mirallié*, ii. B-28.

Vaso-paralysis after section of sympathetic not only disappears with the lapse of time, but may even change suddenly. *Chauveau and Laborde*, ii. B-28.

Pronounced unilateral atrophy of muscles, particularly those of hand and forearm, also of back and lower extremities, in a boy, 16 years old, who presented unmistakable symptoms of unilateral (right-sided) syringomyelia. *Bochroch*, ii. B-28.

Symptoms of syringomyelia in a case showing a cavity due to primary softening processes, clearly caused by degeneration of blood-vessels in gray substance and surrounding portion of posterior columns. *Müller and Meder*, ii. B-28.

DIAGNOSIS. First bulbar symptom anæsthesia of the trigeminal nerve. Occasionally bulbar symptoms present long periods of remission and may disappear entirely. *Lamarq*, ii. B-29.

Case of a woman in whom the bulbar symptoms were especially pronounced: Hemiatrophy of tongue, pupillary differences, narrowing of field of vision, nystagmus, etc. *Raymond*, ii. B-29.

First symptom in a girl 15 years old, paralysis of the left arm. Later on, patient burned her hands without feeling it; pains in left side of chest; scoliosis, and atrophy of left arm. *Horst*, ii. B-29.

Three cases presenting contraction of field of vision, of hysterical nature. *Krähmer*, ii. B-29.

[A whole series of cases as yet classed as atypical go to prove that there are really a number of different forms in which syringomyelia presents itself. A difference in the various forms already consists in the fact that each of the principal symptoms of syringomyelia—muscular atrophy, dissociation of sensibility, and trophic disturbances—may be developed to such a preponderating extent as to give a specific character to the case. H. Obersteiner, Assoc. Ed., ii. B-29.]

Case decidedly unilateral in character, for a long time supposed to be one of hysteria. Second case apparently belonging to scapulo-humeral type, although bulbar disturbances so often met with in this form not present. *Hatschek*, ii. B-30.

Scapulo-humeral type characterized by beginning of the atrophy in muscular region of the shoulder, with torsion of the scapula and pronounced kyphosis. *Schlesinger*, ii. B-31.

Case in which symptoms limited to the left side of upper part of the body, only presenting themselves in the form of disturbances of sensibility. *Bregman*, ii. B-31.

Man suddenly affected with paralysis of four extremities, unconsciousness, general anæsthesia up to neck, retention of urine, and alvine incontinence. Death. A central cavity with gliomatous walls and sclerosis of the vessels found. *Preobrajensky*, ii. B-31.

Case showing symptoms of Brown-Séquard's semilateral paralysis. *Raymond*, ii. B-31.

Case presenting symptoms of acromegaly with those of syringomyelia. *Lorrain*, ii. B-31.

Three cases of supposed syringomyelia in one family. In family type, cavity myelitis the basis of the affection. *Verhoogen and Vandervelde*, iii. B-31.

[Although several histories of cases allow of a certain doubt concerning correctness of diagnosis, they are fully convincing of the fact that the cavity in the spinal cord, observed in one case, is by no means syringomyelitic in nature, but is only the widened lymph-space, often similarly enlarged and in which the vessels alongside the central canal, the well-known anastomotic arteries and veins, follow their course. H. Obersteiner, Assoc. Ed., ii. B-31.]

Case of true hydromyelia. Pronounced scoliosis on right upper extremities; contracture of the flexors of the hand. Central canal excessively enlarged throughout entire length. In a spinal cord examined, several purely gliomatous spots and genuine syringomyelitic cavities observed. *Straub*, ii. B-32.

[All transition forms, from true hydromyelia to syringomyelia, may be found without participation of the central canal, as asserted by Schlesinger. H. Obersteiner, Assoc. Ed., ii. B-32.]

Case of true hydromyelia in a girl subject to chorea. *H. Simon*, ii. B-32.

Case in which syringomyelia and hysteria were combined in the same individual. *Agostino*, ii. B-32.

Case of syringomyelia. Although muscular atrophy, pupillary differences, and affections of joints absent, hypnotism causing hemianæsthesia to disappear, diagnosis of hysteria justified. *Wichmann*, ii. B-32.

Symptoms of syringomyelia after a fracture of the left radius. *Eulenburg*, ii. B-32.

Morvan's disease a form of leprosy and cases of syringomyelia which run their course under the type of Morvan's disease also. *Prus*, ii. B-33.

Prime factor not the lepra bacillus, none of these bacilli being found in the ependymal gliomata. *Marinesco*, ii. B-33.

Severe pain present in two cases totally disappeared during a course of treatment at the baths of Oeynhausen. *Sänger*, ii. B-33.

TABES DORSALIS. (Locomotor Ataxy.)

ETIOLOGY AND PATHOGENESIS. Tabes and progressive paralysis merely metasyphilis, or a primary atrophy of nerve-elements the main factor of which is syphilis. *Möbius*, ii. B-33.

Study of 225 cases. Although syphilis could be proven in about 55 per cent. of cases, in many it is associated with other causes of tabes dorsalis,—hereditary joint affections, alcoholism, sexual excess, etc.; exact percentage which could safely be attributed to syphilis, 22.33 per cent. *Pitres*, ii. B-33.

Among 108 cases, only 20.4 per cent. undoubtedly syphilitic; 58.3 per cent. non-syphilitic. *Storbeck*, ii. B-33.

Etiological importance of syphilis is, in general, overestimated. *Cardarelli*, ii. B-33.

Undeniable importance of syphilis in tabes found in a toxic affection of peripheral nervous system, disease of spinal cord only secondary. *Darkschewitsch*, ii. B-34.

[In the faction which has, up to the present, absolutely denied the significance of syphilis, there is a tendency to at least admit the possibility that, in a certain number of cases a syphilitic basis is present. In the majority of text-books it is stated that trauma may also give rise to tabes dorsalis. Last year, however, Hitzig considered such a case of traumatic tabes as most improbable. H. Obersteiner, Assoc. Ed., ii. B-34.]

Current view that locomotor ataxy may be caused by traumatism *per se*, irrespective of a direct lesion of the cord, not sustained by the published evidence thus far adduced. *Morton Prince*, ii. B-34.

Patient in whom ataxia of all four extremities occurred after a fall upon the back. Anæsthesia, loss of patellar reflexes, gastric and rectal crises. *Craig*, ii. B-34.

Case of tabes developing very shortly after an injury to the foot. One can scarcely be careful enough before deciding upon a diagnosis of traumatic tabes. *Bernhardt*, ii. B-34.

[An instructive proof of this is furnished by a patient of Pineles, of Vienna, that of a coachman in whom, after fracture of the

TABES DORSALIS (continued).

arm, primary symptoms of tabes were noticeable; although the man denied syphilis, a careful investigation elicited the fact that he had formerly been infected. H. OBERSTEINER, Assoc. Ed., ii. B-35.]

Six new cases of tabes in women. *Möbius*, ii. B-35.

Case of a young woman who presented pronounced symptoms of tabes after a severe syphilitic infection. *L. Pierce Clark*, ii. B-35.

Views expressed last year that tabes was mainly caused by constriction of the posterior roots at their entrance into the spinal cord, the result of a retraction of the pia mater due to syphilis. *Obersteiner, Redlich*, ii. B-35.

Concurrence with Obersteiner and Redlich that there is a constriction of the posterior roots at the passage of outer spinal meninges, where the dura mater and arachnoids lie closely against the roots. At this point, however, perineuritis, nuclear proliferation, and sclerosis to be found. *Nageotte*, ii. B-35.

Such changes frequently occur in tabes at the point indicated, but they are of no importance as far as degeneration of posterior roots is concerned. *Obersteiner*, ii. B-35.

[It should be stated that this compression is present in every case, but that it is subject to great individual variations, thus, perhaps, giving rise to a more or less pronounced tendency to tabetic disease. H. OBERSTEINER, Assoc. Ed., ii. B-36.]

Theory that tabetic sclerosis of posterior columns is a disease of posterior roots does not completely explain the anatomical condition in recent cases. *Weil*, ii. B-36.

Tabes and progressive paralysis not only frequently associated, but they are, in reality, only two forms of one and the same disease. *Raymond*, ii. B-37.

When tabes and progressive paralysis occur in the same individual it is merely a question of a casual occurrence of two nervous diseases which do not stand in any mutual intimate relation. *Ballet and Joffroy*, ii. B-37.

Tabes present in 3 per cent. of paralytic subjects. *Renaud*, ii. B-37.

Dementia paralytica and true tabes only rarely combined. The former affection may begin with spinal symptoms which simulate tabes; then merely a pseudotabetic process with a different condition in the spinal cord. *Joffroy*, ii. B-37.

SPINAL SYMPTOMS. Four hundred cases of tabes from private practice of Erb. Tabes begins in 67 per cent. of cases with lancinating pains, often not present alone as first symptom; may exist a number of years without disease manifesting itself. Frequency of main symptoms of tabes: Failure of patellar reflexes in 92.00, Romberg's symptom in 88.75, lancinating pains in 88.25, vesical disturbances in 80.50, ataxis of the legs in 74.75, changes in pupillary reaction in 70.25, paræsthesia of the legs in 64.50, weakness of the legs and quick fatigue in 62.25, absence of sexual desire in 58.25, changes in the size of pupils in 48.25, and girdle sensation in 31.00 per cent. *Leimbach*, ii. B-37, 38.

Marked hyperflexion of the leg at hip-joint, without bending at the knee, painful in healthy subjects. *Putnam*, ii. B-38.

Transitory paralysis of radial nerve during course of tabes often observed, merely due to a traumatic compression paralysis. *Möbius*, ii. B-38.

Case in which very soon after onset there was bilateral atrophy of the thenar eminence, of neuritic origin. *Fahmüller*, iii. B-38.

Case of tabes with retention of the patellar reflexes. *Follen Cabot*, ii. B-38.

Old case of tabes, showing not only secondary contractures, but also re-appearance of tendon-reflexes. *Raichline*, ii. B-38.

Case of compression myelitis in which the middle thoracic portion of the spinal cord was compressed by an angioma extending from the vertebræ. The cord had contracted into a cicatrix in which not a single nerve-fibre was visible. *Gerhardt*, ii. B-38, 39.

Special stress upon retention of the tendon-reflexes in total transverse lesion. *Bastian and Bruns*, ii. B-39.

Disturbances of sensibility met with during progress of tabes much less considered than they should be. In all of sixty tabetic patients, hyperæsthesia of trunk a constant and early condition. Clinical picture furnishes a further proof of theory that tabetic disease in general is due to a degeneration of the posterior intra-medullary root-fibres. Marked analgesia of ulnar nerve appears, as a rule, to accompany other disturbances in ulnar region. *Max Laehr*, ii. B-39.

[The ulnar symptom is also frequently met with in dementia paralytica, and is, therefore, not characteristic of tabes. H. OBERSTEINER, Assoc. Ed., ii. B-39.]

Analgesia of the ulnar nerve also observed in other mental diseases, though seldom. *Gœbel*, ii. B-39.

Case considered as beginning tabes, in which athetosis of right arm was a pronounced primary symptom. *Collins*, ii. B-39.

CEREBRAL-NERVE SYMPTOMS. Among cerebral nerves, those in relation with the muscles of the eye are most frequently affected. *Wendell Reber*, ii. B-40.

Constant secretion of tears sometimes met with; in other cases there are actual tear-crises similar to gastric crises. *Panas*, ii. B-40.

Case in which scotoma of left eye preceded

beginning of tabes, disappearing after two months without special treatment. *Chubb*, ii. B-40.

A large proportion of blind tabetic patients remain in the pre-ataxic period, while in patients retaining their sight this period rarely lasts a long time. *Dejerine*, ii. B-40.

Specific motor symptoms in tabes begin to disappear as soon as atrophy of the optic nerve sets in. *Benedikt*, ii. B-40.

Disturbances of hearing, when a careful examination is made, will be found present in nearly every case. *Collet*, ii. B-41.

Case in which the slightest attempt at taking nourishment caused severe contractions of the pharynx. A single treatment by suspension caused this to disappear. *Courmont*, ii. B-41.

Two cases of severe pharyngeal crises, one of the patients dying during such an attack. *Moreira*, ii. B-41.

Of 122 cases laryngeal disturbances referable to tabes in 17; abductors of vocal cords affected 11 times,—5 times both sides, 4 times right side, twice on left side with paralysis of posticus nerve. *Herms von Böhne*, ii. B-41.

Case of tabes with bilateral paralysis of the abductors. *Fr. Hawkins*, ii. B-41.

"Hutchinson's mask," a feeling as of a spider-web over the face, of diagnostic value. *Möbius*, ii. B-41.

Anæsthesia of the cornea and of the conjunctiva. *Berger*, ii. B-41.

In a case of lingual hemiatrophy, diseased portions showed long rows of tiny fat-nuclei in the muscular fibres; nerve-fibres in lingual net-work also showed perceptible degeneration. Nucleus of hypoglossal appeared entirely healthy. *Obersteiner*, ii. B-41, 42.

VISCERAL SYMPTOMS. Three cases of tabes in which gastric crises the first symptom, and, later on, remained dominant. Lack of hydrochloric acid during crises and intervals. *L. Wolff*, ii. B-42.

In cases of gastric crises hyperacidity of stomach did not increase during attacks, showing merely a predisposition to this condition. *Bourguignon*, ii. B-42.

[It is striking that gastric crises are very frequently combined with laryngeal symptoms and are seldom absent when arthropathies are present. H. Obersteiner, Assoc. Ed., ii. B-42.]

TROPHIC SYMPTOMS. In seven cases, condition in body of joints and in the soft portions does not differ greatly in neuropathic arthropathies from that in ordinary arthritis deformans. *Klemm*, ii. B-42.

[The pathogeny of tabetic arthropathy is still shrouded in mystery. The interchange of action between the sensory and vasomotor nerve-functions is doubtless disturbed by the pathological conditions in the nervous apparatus, but it is still a question whether neurotic arthropathies are referable to such a disturbance; perhaps there is merely a condition of ordinary arthritis deformans which has undergone a decided modification owing to the lesion of the nervous system. H. Obersteiner, Assoc. Ed., ii. B-42, 43.]

Neuropathic joint affections referable to arthritis deformans, but latter to be considered as a result of the disease of the central nervous system. *Budinger*, ii. B-43.

Cases showing swelling some distance from an articulation suggesting cold abscess, but recognized later on as a collection of synovial fluid.

These remote collections ascribed to an exaggerated production of synovial fluid, causing rupture of the sac and effusion in other parts. *Lépine*, ii. B-43.

Tabetic arthropathy in a trophic degeneration without inflammation. *Parker Syms*, ii. B-43.

Trophic disturbances principally met with in tabetic patients in whom sensory symptoms predominate. *Newmark*, ii. B-43.

Trophic disturbances characteristic of tabes in a woman suffering from dementia paralytica. *Westphal*, ii. B-43.

Case of necrosis of the jaw with loss of teeth in early stages. *Kalischer*, ii. B-43, 44.

Similar case in which fifteen teeth fell during one spring without pain. *Möbius*, ii. B-44.

Arthritic swelling of knee and ulcer of sole of foot showing tendency to heal, with defective action of pupils and lancinating pains in knee. Diagnosis of beginning tabes. *Waldo*, ii. B-44.

Case in which ulcers were not, as usually, on under side of foot, but on dorsum. *E. Fournier*, ii. B-44.

Case in which there was ulceration of the nose and both ears. *Giraudeau*, ii. B-44.

Spontaneous fracture of the tibia in a case of tabes. *Gouley*, ii. B-44.

Multiple lipomata may also be regarded as a peculiar trophic manifestation in tabes. Illustrative case. *Tscherkassoff*, ii. B-44.

Tabetic patient with arthropathy of right knee and several tumors of right thigh,—pseudolipomata. *Mathieu*, ii. B-44, 45.

PSYCHICAL SYMPTOMS. [Psychical disturbances during the course of tabes are rather rare, but not quite so rare as is usually believed. It is necessary, in such cases, to carefully guard against confounding these disturbances with a condition of dementia paralytica combined with ataxic symptoms. H. Obersteiner, Assoc. Ed., ii. B-45.]

Two cases of melancholia in combination with tabes. *J. V. Blachford*, ii. B-45.

ATYPICAL CASES. Atypical case of tabes, besides sudden appearance of hemiplegia and pronounced paralysis agitans. *Raichline*, ii. B-47.

TABES DORSALIS (continued).

Case in which first symptoms noticeable twenty-one years before, notwithstanding which only upper portion of spinal cord affected. *Beevor*, ii. B-47.

Case in which, during treatment by suspension, violent hysterical symptoms set in. Combination of hysteria and pseudotabes in a young girl of 15 years. *Th. Diller*, ii. B-74.

TREATMENT. [In the therapeutic field but little that is new has, unfortunately, been of late reported; so that no particular progress can be recorded. Single cases in which a considerable improvement has resulted from suspension are reported from time to time, but they are not numerous. H. OBERSTEINER, Assoc. Ed., ii. B-45.]

Suspension a useful measure; certain symptoms are improved, such as pains, sexual weakness, and incontinence. *De Forest Willard*, ii. B-45.

Case obliged to use a wheel-chair in which suspension, resorted to every other day during a long period, caused return of locomotion powers. Bladder and rectal symptoms also disappeared. *Hugh Cuthbertson*, ii. B-45.

Substitute for suspension. Patient laid upon his back, legs and hips bent so as to bring knees as near as possible to chin. This motion practiced every evening caused lancinating pains to disappear. *Blondel*, ii. B-45.

Suspension not dangerous to organs of circulation when necessary precautions observed, even when patients have heart affections. *Joachimsthal*, ii. B-45.

Experiments at medical clinic of Jena with suspension method have given very unsatisfactory results. *Schlick*, ii. B-45.

Personal method recommended for ataxia of upper extremities. Mechanical motions, —for instance, inserting pegs in a plate provided with holes, catching swinging leaden balls, etc., varied so that the patient may not grow fatigued and lose interest. *Frenkel*, ii. B-46.

Good results obtained for symptoms of inco-ordination from Frenkel's method. *Verrier*, ii. B-46.

[While we admit that, in reality, but little can be done for the benefit of patients having tabes, we must, nevertheless, hail with pleasure any mode of treatment calculated to alleviate the unfortunate condition of the sufferers. H. OBERSTEINER, Assoc. Ed., ii. B-46.]

In the majority of apparently organic nervous affections there is also a functional psychical factor; hence improvement under suggestion. *Obersteiner*, ii. B-46.

Though organic changes not influenced, hypnosis may remove a number of functional disturbances and materially help the patient. *Bérillon*, ii. B-46.

For the relief of the lancinating pains of tabes, analgen ¾ to 1 drachm daily. *Maas*, v. A-12.

Galvanic brush excels faradic brush in intensity of cutaneous irritation. Can be localized and regulated accurately. *Witkowski*, v. B-18.

TACHYCARDIA. See PULSE, DISORDERS OF.

TALIPES.

TALIPES EQUINO-VARUS.

PATHOLOGY. Exaggerated obliquity of neck of astragalus upon body of bone constitutes chief lesion, as pointed out by Parker and Shattock and Scudder; but their method of mensuration seems irrational. *Kirmisson and Charpentier*, iii. G-56, 57.

Primary condition incomplete progressive dislocation of various joints, bony deformity being entirely secondary to arrested development or increased growth of parts, crowding together of bones on plantar and internal surface, and separation on dorsal and external surface. 1. Hypertrophy of dorsal ligaments and atrophy of plantar ligaments. 2. Weakness of scaphoid insertion of muscles of legs. *Lapeyre*, iii. G-57.

TREATMENT. Intervention at earliest possible moment, in congenital club-foot, by manipulation. Consecutive immobilization in rigid apparatus. *Redard*, iii. G-58, 59.

Forcible non-operative method of König preferable to all others. All club-feet can be straightened without surgical intervention up to the age of 30. *Schultze*, iii. G-59.

In cases of extreme deviation, Phelps's method insufficient; extirpation of astragalus and bones which prevent reposition necessary. *Ambrosio*, iii. G-59.

Forty-seven cases followed up one or more years. Best results obtained after Phelps's operation, next best by cuneiform excision of tarsus, supramalleolar osteotomy, and, lastly, tenotomy with reposition. In cases of long-standing tenotomy with forced reposition insufficient, yet simple measures should first be tried, frequently giving surprising results in paralytic club-foot. *Hensel*, iii. G-60.

Tendency to relapse after Phelps's operation, particularly where large, open wound resulting from operation has been allowed to granulate and close by itself; may be remedied by making use of redundant skin present on outer side of foot. *Kellock*, iii. G-60, 61.

Always an avoidable condition; relapses generally due to carelessness of patients, friends, and sometimes of practitioner.

[This is correct. LEWIS A. SAYRE and REGINALD H. SAYRE, Assoc. Eds., iii. G-61.]

Phelps's operation more effective on varus than on equinus. Operative treatment discarded for that of forcible wrenching after dividing tendo Achillis. *Robert Jones*, iii. G-61.

Case of club-foot acquired post-partum, relieved by Phelps's operation on one side, with tenotomy of tendo Achillis and tibialis posticus tendons, plantar fascia, and Achillis and tibialis posticus tendons on the other. *Bristow*, iii. G-61.

Excision of the astragalus a rough-and-ready procedure; shortens the limb, needlessly mutilates the foot, and results often unsatisfactory. If range of movement already existing can be preserved, but ninety degrees substituted for one hundred and five as flexion limit, result must be considered satisfactory. Attained by removing wedge from neck of astragalus and anterior portion of os calcis, leaving body of astragalus *in statu quo* between malleoli. *Little*, iii. G-62.

Method of choice in old congenital equino-varus: Extirpation of astragalus with complementary resection of great apophysis of calcaneum. *Gross*, iii. G-62.

Case of Madura foot in child, 2 years old, who showed no trouble but equino-varus. *Kirmisson*, iii. G-63.

Stretching of tendo Achillis by separation and immediate suture of two ends in paralytic equino-varus. *Prioleau*, iii. G-63.

Amputation of both legs at knee-joint for paralytic club-foot in a case of spina bifida complicated by congenital inguinal hernia, in which testes and appendix vermiformis were also removed. *Taylor*, iii. G-63.

TALIPES VALGUS. Children are born flat-footed; savages wearing no shoes always flat-footed. Principally due to failure of tarsal bones to become rigid. If pain or deformity, operation indicated. Trendelenburg's best. *Ricketts*, iii. G-65.

[Operations on the bones are called for only in the most exceptional cases of talipes valgus. Forced reposition and support, combined with massage, are usually much to be preferred. R. H. Sayre, Assoc. Ed., iii. G-65.]

Feet of infant at birth not flat. Body of fat develops under arch, which gives appearance of flat foot for four or five years. Pronation more constant than breaking down of arch, and may be entirely separated from it. Treatment the same. *Lovett and Dane*, iii. G-65, 66.

Normal foot may be made to assume attitude of flat-foot. Flat-foot a permanent exaggeration of normal attitude. In the surgical sense a compound deformity of valgus and abduction and improper distribution of weight and strain are of vastly greater importance than depth of arch. Can be cured, but only by application of simple principles of mechanics. *Whitman*, iii. G-66.

Massage twice daily, gymnastics, forcible straightening and wearing of suitable soles, representing shape of normal foot, and forcing entire foot to press upon inclined plane indicated. Several weeks enough to cause useless and painful flat-foot to resume its functions and the pain to disappear, *Hoffa*, iii. G-66, 67.

Trendelenburg's operation—*i.e.*, osteotomy of lower end of bones of leg—only corrects deformity by causing second angular deviation of malleolus, causing bayonet-shaped deformity. Ogston's method insures complete reposition of axis of limb, and therefore should be method of choice in painful cases. *Kirmisson*, iii. G-67.

Astragaloid osteotomy—removing greater part of head of hypertrophied bone, apex of wedge extending to body of bone—preferred. Medio-tarsal joint not destroyed as in Ogston's operation. *Stokes*, iii. G-67.

Case in which anterior tibial did not respond to electrical stimulation; use of peroneous longus to replace anterior tibial. Functions of limb restored to great extent. *Ghillini*, iii. G-67, 68.

Bicycle in treatment of flat-foot affords needed exercise to most debilitated muscle groups controlling ankle, with foot in favorable position and superincumbent weight largely eliminated. *Brunelli*, iii. G-68.

TALIPES VARUS. A badly-treated Pott's fracture tends to correct deformity. Deformity which follows fracture of fibula just above ankle artificially caused in inveterate case by resection of five-eighths inch of its shaft, followed by forcible abduction to close hiatus between fragments, and latter held in apposition by turns of silk-worm gut through drill-holes in fragment ends. Excellent result. *Hopkins*, iii. G-63, 64.

Factors of foot inversion commence below the knee. Tibia normal, but extremity of fibula deflected forward, and considerably in front of normal position. Careful transverse division of tibia at junction of middle and lower thirds. Fibula left intact, lower fragment rotated outward, and foot straightened. *Swan*, iii. G-65.

TARSALGIA. In walking the arch is continually being obliterated and reformed. In metatarsalgia arch does not reform itself, though obliteration of arch seldom produces symptoms. Treatment, reformation of the arch. Simply bandaging foot tightly or inner soles so padded as to bring pressure just behind heads of second and third metatarsal bones. Exercises, massage. *Goldthwaite*, iii. G-68.

In obscure tarsalgia, if cuboid pushed back with index finger behind projection of fifth metatarsal, momentary relief of pain obtained. *Bloch*, iii. G-68.

TATTOOING. (See also SYPHILIS.)

Case of tattooing followed by acute rheumatism. *E. D. Williams*, iv. A-51.

REMOVAL OF. Variot and Baillot's method: Marks painted with a concentrated solution of tannin. Series of prickings over tattooed design with fine needles. Stick of nitrate of silver passed over surface; black prickings previously made become detached and superficial layers of derma then known to contain tannate of silver. Surface then powdered with tannin for two or three days. In fourteen to eighteen days scab falls off and red mark seen gradually fades away. Variot and Baillot also suggest bioxalate of potassium in place of nitrate of silver. Of course, antiseptic precautions are all taken in performing this operation, and the old tattoo-needle is used to remove all tattoo-marks. *T. C. Minor*, iv. A-51.

Entire tattooing remade with needles dipped in a solution of chloride of zinc, 30 parts to 40 of sterilized water. If proper care taken, operation followed by no untoward inflammatory reaction. *M. F. Brault*, iv. A-51.

TESTICLES. (See also HYDROCELE; VARICOCELE.)

ANOMALIES. Case in which both testicles lay in the left scrotal partition. Two vasa deferentia united in a common cord. *Jordan*, iii. E-29.

Small supernumerary testicle removed from right scrotum. Separate tunica vaginalis. *A. Lane*, iii. E-29, 30.

Case in which left testicle was found in ischio-rectal space. *H. Crutcher*, iii. E-30.

CORD. Divided ends of vas deferens sutured together and primary union obtained. *W. J. and C. H. Mayo, Parlavecchio*, iii. E-30.

[Actual proof of perviousness of canal of vas deferens needed before these results are accepted as perfect. KEYES AND FULLER, Assoc. Eds., iii. E-30.]

Case in which torsion had occurred many times and was reducible by patient. At birth right testicle had but partially descended. *Van der Poel*, iii. E-30.

Case of torsion of cord in which castration was performed. *Lexer*, iii. E-31.

Partial atrophy of testicle of a boy previously relieved of an acute torsion by untwisting after testicle had remained strangulated an hour and a quarter. *W. G. Nash*, iii. E-31.

SEMINAL VESICLES. Cavity of ampulla of Henle shut off from that of vesicle by valve-like opening, former very small in comparison with that of vesicle. *E. Fuller*, iii. E-31.

Good results from Fuller's method of stripping vesicles. *J. M. Thompson, E. E. King, B. E. Vaughan, B. Foster*, iii. E-31.

Frequency of inflammatory involvement of seminal vesicles in gonorrhœa. *Jordan Lloyd*, iii. E-31.

Prostatic hypertrophy frequently caused by retention of secretions of prostate and seminal vesicles. Glandular prostatitis, digital compression of prostate as treatment to evacuate contents, carefully avoiding violence. *Reliquet and Guépin*, iii. E-31.

[The cases studied represent, in all probability, certain forms of seminal vesiculitis in which walls of sacs are distended and compressible, and treatment by digital compression of prostate has proved beneficial only in so far as it has stripped from these sacs their inflamed contents. KEYES AND FULLER, Assoc. Eds., iii. E-31, 32.]

SCROTUM.

PHLEGMONOUS PROCESSES. Case of gangrene of scrotum complicating varicella in a boy 2 years of age, and extending to dartos, fasciæ, and tunica vaginalis. *Spivak*, iii. E-24.

Case of phlegmonous inflammation of scrotum and subsequent purulent peritonitis without assignable cause in apparently healthy infant. *S. K. Bremmer*, iii. E-24.

TUMORS. Case in which sebaceous cysts of scrotum obtained great development, one being as large as scrotum itself. *A. Sheen*, iii. E-25.

Fibrocystic tumor of scrotum 14½ inches in diameter removed. *F. T. Brown*, iii. E-25.

Epitheliomata originate in mediastinum testis. Three varieties: Teratomatous most voluminous; Wolffian not so large and apt to be cystic; seminiferous a compact growth which, on section, may simulate a gumma. *Pilliet and Costes*, iii. E-30.

Sarcoma apparently connected with spermatic cord, within which true bony masses were found. *Maylard*, iii. E-30.

Instances of sarcoma of testicle, cavities filled with decolorized clot, resembling hæmatoma. *Morton, Lowrie*, iii. E-30.

URO-GENITAL TUBERCULOSIS. Most frequently begins as a secondary process in the epididymis or prostato-vesical region; involvement of urethra alone exceedingly rare. *M. P. Porter*, iii. E-37, 38.

[Opinion based on negative replies received to letters addressed to general surgeons. In our opinion, tubercular processes originating in deep urethra are not infrequent. KEYES AND FULLER, Assoc. Eds., iii. E-38.]

Case involving perineum, prostate, ischio-rectal fossa, and rectum treated successfully by injections into tubercular cavities of mixture of sulphur and glycerin. *A. Lane*, iii. E-38.

Tubercular infiltration of cellular tissue around prostate and bladder, almost always secondary to tuberculosis of urinary tract. *Englisch*, iii. E-38.

TETANUS.

ETIOLOGY AND PATHOLOGY. In all cases of traumatic tetanus there are present in the spleen and in the blood the products of bacterial action, albumoses, and certain acid organic bodies. *S. Martin*, iii. M-1.

Four distinct cultures, showing specimens which grew aërobically. First recorded instance in which bacillus of tetanus cultivated save in medium almost free from oxygen. Probably explains its presence and development in earth. *Vincenzi*, iii. M-1.

Toxins of Nicolaier's bacillus not observed in blood of guinea-pig into which quantity of toxin sufficient to cause death had been inoculated. *Vincenzi*, iii. M-1, 2.

Three cases of tetanus in which same catheter had been used for intra-uterine injections, instrument supposed to have been disinfected by plunging in boiling water and solution of phenol. *Meinert*, iii. M-2.

Case showing possible etiological importance of dampness. Cold and dampness much feared by Larrey. *Courtin*, iii. M-2.

Fatal case of tetanus from a chilblain. *H. F. Lawrenson*, iii. M-2.

Case following frozen feet. Man had been caring for horses. *P. Chevillot*, iii. M-2.

Fatal case following burns from ignited phosphorus. *S. C. Godfrey*, iii. M-2.

Case in an infant after circumcision. *A. Schirman*, iii. M-2.

Case of chronic form following extirpation of cervical glands. *Samain*, iii. M-2.

Case in which hysterical symptoms followed tetanus. No hereditary neuropathy. *Berthier*, iii. M-2.

Polymorphous erythema and intestinal hæmorrhage in course of a subacute attack, confirmatory of an attenuated form of infection. *Molle*, iii. M-2, 3.

ETIOLOGY OF NON-TRAUMATIC FORMS. Case with no history of traumatism. Probable that through microscopical lesions of the gut bacilli entered into the system. Cases of so-called reflex tetanus thus explained. *Kamen*, iii. M-3.

Fatal case of tetanus from damp cold. Bacillus of Nicolaier found in the bronchial mucus, inoculation into rabbits causing death by tetanus. Throws some light on etiology of so-called rheumatic tetanus. *Carbone and Perrero*, iii. M-3.

CEPHALIC FORM. Form of unilateral facial paralysis associated with tetanus due to injury to part of one of the cranial nerves. Case ending in recovery. *De Forest Willard and James I. Johnstone*, iii. M-3, 4.

Fatal case of cephalic tetanus following wound of finger-nail. *Larger*, iii. M-4.

Fatal case of cephalic tetanus showing marked symptoms of dysphagia. Death usually follows when disease does not remain localized in the head. *Gougenheim*, iii. M-4.

ANTITOXIN TREATMENT. Unprepared animals injected with mixture of poison and antitoxin which had stood "*in vitro*" for one hour at ordinary room temperature died unless ratio of antitoxin to poison 2 to 1 or more. Action of tetanic antitoxin truly a destructive one; at any rate, "*in vitro*." *S. Fedoroff*, iii. M-4.

Toxin of tetanus shared with that of diphtheria property of filtering virtually intact through porcelain. Animals subject to tetanus can be rendered refractory by inoculation of minute doses of pure toxin. *Nocard*, iii. M-5.

To dissolve dried serum with cold water takes nearly half an hour; affords risk of aërial contaminations. *C. E. Douglas*, iii. M-5.

Serum dried *in vacuo* into scales quite soluble, permanent, and satisfactory. Nine out of eleven cases cured. Quantity of serum 30 to 50 cubic centimetres at a dose. *Weir*, iii. M-6.

Modern antitoxin treatment the most promising of any method; 20 to 40 cubic centimetres for the first dose, followed by 10 to 20 cubic centimetres every six or twelve hours, hypodermically. All precautions to avoid sepsis. *Hewlett*, iii. M-6.

Serum treatment has not actually changed prognosis in acute and serious cases. In milder cases seems to lessen spasms and distress; it has reduced mortality. *Kantbach*, iii. M-6.

Application of Tizzoni-Cattani method very unsuccessful in Paris. Only successful cases those of chronic tetanus of a naturally benign character. Prophylactic value not denied. *Berger*, iii. M-7.

PROPHYLAXIS. Experiment showing the uselessness of antitetanic serum as a curative agent when combined with amputation of the inoculated part, but proving its value as a prophylactic in animals. *Nocard*, iii. M-8.

In animals confers absolute immunity, persisting, according to dose employed, for two to six weeks. Protection certain and complete when seat of infection is subconjunctival tissue; less so when the virus introduced into thickness of muscle. Antitoxin should be injected as prophylactic after any wound where there is risk of infection,—fouled, etc., by earth or manure. *Vaillard*, iii. M-8, 9.

As prophylactic small dose of antitoxin (5 c. cm.) sufficient. Local treatment (nitrate of silver, 1 to 100 solution, and iodine 1 part, with equal weight of potassium iodide in 100 of water) must not be omitted, and free excision of affected part should be practiced; darkened room, perfect quiet, and abundance of easily-digested food. Chloral to induce sleep. *Hewlett*, iii. M-9.

Bacillus does not become virulent unless

TETANUS (continued).

excluded from oxygen; hence punctured wounds to be opened up freely so that oxygen may enter freely. *W. B. Thistle*, iii. M-9.

MEDICAL TREATMENT. In successful case chloral used in daily dosage of from 2½ to 3 drachms. Daily dose of 45 grains of salol for several days. *Marie*, iii. M-9.

In case treated by chloral hydrate and morphia, erythema multiforme of throat and thorax. Eruptions often attributed to toxic effect of tetanic antitoxin. *Gussenbauer*, iii. M-9.

Recovery in apparently hopeless case obtained with hypodermic injections of carbolic acid, 12 drops of 2-per-cent. solution injected every three hours. *Oscherovski*, iii. M-9.

Acetanilid with tincture of gelsemium recommended. *H. S. Brewer*, iii. M-10.

Good results from application of ice or cold water by irrigation to the wounded part immediately after the reception of the lesion; maintain application for one week constantly night and day. *E. Goodman*, iii. M-10.

Rebellious case successfully treated by ether-spray to the vertebral column as recommended by Jaccoud, continuing internal administration of chloral. Spray used from three to five minutes every three-fourths of an hour, first along spine, later on over all affected parts. *Fombarlet*, iii. M-10.

TETANY.

PATHOLOGY. Marked case in which hæmorrhagic effusions in anterior part of cauda equina on level with roots of third, fourth, and fifth pairs and hyperæmia of sciatic sheath were discovered at autopsy. *Köster*, ii. C-21, 22.

In pregnant women attacks of tetany unknown before fourth or fifth month, when uterus begins to contract. Probably close relationship between tetany and uterine contractions. *Neumann*, ii. C-22.

Two cases, one in male infant of 1½ years, other in female infant of 11 months. *Boudyrev*, ii. C-22.

Diagnosis between tetany and tetanus. Main points: In tetanus history of lesion; trismus and stiffness of neck first symptoms, never occurs in tetany where first symptoms occur in hands and toes. Tetany apyretic, tetanus always accompanied by fever. *Krafft-Ebing*, ii. C-22.

Typical cases. *Bechterew, Lewi*, ii. C-22.

TREATMENT. Form following total removal of thyroid gland a manifestation of acute myxœdema, and due to complete arrest of thyroid secretion. Thyroid extract curative. Common tetany may be due to lack of thyroid secretion. Thyroid treatment should be tried. *Bramwell*, ii. C-21.

Case of tetany following extirpation of thyroid gland. *Gottstein*, ii. C-21.

Suitable hygiene, good diet, exercise, bromides, and electricity. *Preston*, ii. C-21.

Study of seventy-two cases. No difference between tetany of adults and that of children. *Griffith*, ii. C-21

Two cases associated with chronic gastric dilatation. Tetany ascribed to the absorption of organic poison produced in stomach. Washing out stomach, either with tepid water or with weak solution of resorcin. *Fenwick*, ii. C-21.

A disturbance of medullary reflex centres. Sedatives, galvanization of peripheral nerves and of cord, and hydrotherapy. *Kliatschkine*, ii. C-21.

Benefit from quinine but temporary; good results from phenacetin. Tonics; hygienic care. *Macalester*, ii. C-22.

TIC CONVULSIF.

Denomination of tic convulsif improper; analogy to chorea; suggests the term "palmus." Four forms: facial; general; acute; general, with pseudomelancholia. Most common type, facial. Many cases treated as chorea are really facial palmus. Case of acute palmus; cure by rest in bed and Fowler's solution. In general, palmus with pseudomelancholia same treatment plus galvanism. Fatigue to be avoided for several months. Good diet and tonics. *Landon Carter Gray*, ii. C-23, 24.

TOBACCO POISONING.

Case of tobacco poisoning; 2½ minims of liquor strychnine hypodermically; return of consciousness in half an hour. After two hours relapse; dose of strychnine repeated. Recovery. *Agia Ram*, v. D-23, 24.

TONGUE, DISEASE OF.

ANKYLOGLOSSIA (TONGUE-TIE).

TREATMENT. Rapid speech development in an adult following operation for tongue-tie. Frænum clipped; geniohyoglossus also, but well back, and patient ordered several hours' vocal drill each day for several months. *Makuen*, iii. K-24, 25.

Sections of the frænum should be extremely limited in its application; when there exists ankyloglossia, congenital or acquired, immobilizing the tongue more or less. When frænum excessively long, simple section not sufficient; excision necessary. Wrong to consider operation indispensable if child nurse badly. A few exercises in suction on the finger may correct the defect. *Chervin*, iii. K-25.

GLOSSITIS, PSEUDOSYPHILITIC. Form resisting specific treatment. *Mendel*, i. C-6.

Difficult to diagnose from simple leucoplasia; certainty of recurrence. *Fournier*, i. C-6.

Possibly only manifestation of debilitated system. *Lydston*, i. C-6.

TUBERCULOUS FORM. Rarely solitary manifestation of tuberculosis; two cases reported. Early diagnosis important therapeutically. Early surgical measures. *Wedenski*, i. C-6, 7.

FOREIGN BODIES. Imbedded piece of pipe-stem causing lesion simulating specific ulceration. *Derville*, i. C-8.

Piece of pipe-stem buried eighteen months. *Hémard*, i. C-8; and gun breech-pin fifty-four days in the tongue. *McKennan*, i. C-8, 9.

LEUCOPLAKIA. Not unusual for plaques to become epitheliomatous; should be carefully watched. *Le Dentu*, i. C-9.

TREATMENT. Concentrated solution of iodide of potassium causes disappearance of plaques in a few days. *Rosenberg*, i. C-9.

℞ Silicious earth, 24 grains; resorcin, 45 grains; simple cerate, 8 grains. Form a paste and apply with a swab; causes shriveling in one or two weeks. If mucous membrane inflamed, balsam of Peru locally. *Leistikow*, i. C-9.

TUMORS.

ADENOMA. Case of adenoma of the tongue closely resembling thyroid tissue, possibly connected with some fœtal remains of the lingual duct. Supports theory advocated by Bernays and Bland Sutton,—that these tumors are of the nature of accessory thyroid glands. *Cresswell Baber*, iii. K-24.

ANGEIOMA. Case of angeioma; rarely observed. *Hulen*, i. C-7.

CANCER. "White-paint" patches of sclerosis always suspicious from the point of view of cancer. *Hutchinson*, iii. K-21.

Epithelioma of the tongue rarely attacks females. Statistical reports of St. Thomas's Hospital for 1881–93 show that of 160 cases only 16 in women; larger proportion of latter under age of 30. *Haward*, iii. K-21, 22.

Precancerous conditions at outset may appear benign. Every sore of doubtful character; a substantial portion of diseased tissue should be excised and examined under the microscope. *Anderson*, iii. K-22.

TREATMENT. To prevent early recurrence of cancer, but to remove thoroughly lymphatic glands next to the disease. Even where glands are not apparently enlarged, frequently found diseased. *Edward Cotterell*, iii. K-22.

[To prevent development of infectious elements and fermentation, hourly painting of whole wound with glycerin and borax, with scrupulous cleanliness of oral cavity; *Puzey*, iii. K-22.]

Case in which Kocher's operation for removal of whole tongue performed; patient regaining remarkable power of speech. *Abbe*, iii. K-23.

Case operated on three years ago in which excision of lateral half of tongue for cancer performed. Patient still living. *Buchanan*, iii. K-23.

FIBROMYXOMA. Case of fibromyxoma,—an encapsuled, translucent, yellow tumor about the size of a kernel of a hazel-nut. Most of the nuclei spindle-shaped, some very wavy in outline; here and there patches of epithelioid cells with vesicular nuclei. Rare. *McWeeny*, iii. K-24.

PAPILLOMA. Corneous papilloma, tumor of tongue consisting of hard cone-shaped villosities and small nipple-like excrescences, the tongue resembling the skin of a porcupine. *Cornil*, iii. K-23, 24.

SARCOMA. Case of round-celled sarcoma of tongue in which epithelial covering could be traced over the whole surface of the tumor. Subepithelial connective tissue here and there, the seat of a moderate round-celled infiltration and a few leucocytes. *Dunham*, iii. K-23.

RIGA'S DISEASE. Fungoid excrescence of frænum, covered with membranous exudation, when first teeth appear. *Fede*, i. C-7.

Probably traumatic lesion due to friction on teeth's edges in cachectics. *Brun*, i. C-7.

TONSILS, DISEASES OF.

ACUTE TONSILLITIS. Clinical differences between various forms of membranous tonsillitis: If the patient cannot open the mouth, diphtheria may almost invariably be excluded and one of the inflammatory, non-diphtheritic forms of angina suspected. *Massei*, iv. D-68.

Case of bilateral dacryoadenitis secondary to tonsillitis. *Panas*, iv. D-69.

Theory that acute tonsillitis is due to an underlying rheumatic or gouty diathesis not substantiated by clinical observation. *Hope*, iv. D-69.

TREATMENT. Case of œdema of the larynx due to acute tonsillitis. Laryngotomy followed by pleuro-pneumonia; aspiration; recovery. *W. E. Taylor*, iv. D-70.

Case in which use of salol during an attack of acute tonsillitis gave rise to complications. Scarlatiniform erythema on the right thigh, rubeolic macules on the left thigh, and papules on the cheeks. Urine presented characteristic reactions of carbolic and salicylic acids. *Josias*, iv. D-70.

Case of tonsillitis complicated with erythema. *Boyd*, iv. D-70.

FOLLICULAR TONSILLITIS.

ETIOLOGY AND PATHOLOGY. The clinical phenomena clearly those of an infective fever, while microscopical examination reveals signs of inflammation of the parenchyma, with increased transudation of leucocytes and presence of micro-organisms in the tissues. Presence of micro-organisms

TONSILS, DISEASES OF (continued). an essential factor in the causation of the disease, but these can penetrate and become actively pathogenic only when some influence (coryza, intra-nasal operations, etc.) detrimental to organism also present. *Fraenkel*, iv. D-70.

Ever-growing importance of the tonsils as the prominent portal of entrance for the most various pathogenic micro-organisms due to physiological gaps of covering epithelium, which are large enough to give easy passage to emigrating leucocytes and to immigrating microbes. *Semon*, iv. D-70.

Lacunar tonsillitis occurs more frequently when galvano-cautery used than when operation a cutting or sawing one. Filtering functions of nose perhaps temporarily abrogated; some, at least, of innumerable organisms found in the nasal passages stimuluted into virulence. *Lennox Browne*, iv. B-70.

In the dust and crusts of mucus and *débris* among the vibrissæ of healthy subjects micro-organisms are never absent; as a rule, abundant. On the Schneiderian membrane, under normal conditions, they are never plentiful; in more than 80 per cent. of thirteen cases studied no organisms whatever were found, the mucus being completely sterile. *St. Clair Thomson and R. T. Hewlett.* iv. D-3.

Lacunar tonsillitis after intra-nasal operations met with in only 1 per cent. Perhaps due to the bactericidal properties of the nasal mucus. *Moritz Schmidt*, iv. D-71.

Tonsillitis not due to septic instruments or cautery points, nor to the subsequent swelling and obstruction after intra-nasal cautery, having occurred with perfectly patent nostrils. *Gleitsmann*, iv. D-71.

Strong presumptions that we are dealing with pathogenic organisms in this affection. *Macintyre*, iv. D-71.

TREATMENT. Twenty-five cases showing specific action of nuclein injections. *J. Mount Bleyer*, iv. D-71.

Follicular concretions predispose to attacks of quinsy. Permanently cured by carefully searching for and destroying all crypts and pockets in which these bodies are formed. *Lewis C. Cline*, iv. D-71.

Hook-bladed knife to unite contiguous follicles and thereby encourage them to eject their contents. To prevent rapid closure solution of 90 grains each of iodine and iodide of potassium in 1 ounce of water painted over surface. *James B. Ball*, iv. D-71.

Antipyrin solution as a gargle. *W. G. Scarth*, v. A-25.

Coal-oil spray or applied locally with a brush. *J. H. Powell*, v. A-100.

ULCERATIVE TONSILLITIS. Chancre-like ulceration liable to cause erroneous diagnosis. Syphilitic chancre grayish with indurated base and borders and glandular enlargement. Pseudochancre also indurated and unilateral, but of shorter duration and characterized by less intense glandular enlargement. Runs an almost painless and apyretic course. *Mendel*, iv. D-72.

Any pharyngeal dysphagia lasting three weeks should lead to suspicion of syphilis. *Garel*, iv. D-72.

Cases resembling tertiary manifestations improved by the iodides. *Payet*, iv. D-72.

Chancre distinguished from such ulcerative lesions by its special aspect and acute symptoms. *Moure*, iv. D-72.

Differentiation from an ulcerated epithelioma frequently very difficult. *Castex*, iv. D-72.

Deep, punched-out ulcer resembling syphilis noticed especially in the spring and autumn in young persons, often medical students. *Moure*, iv. D-72.

[The character of the breath and the facies peculiar to syphilitics are at times of assistance in establishing a diagnosis. The syphilitic ulceration presents here and there a dentated edge and an irregular, shallow, horizontal, groove-like excavation causing the upper edge of the ulceration to slightly overhang. This would tend to suggest that the ulcerative process is mainly active on a level with the bottom of the ulcer. The pseudosyphilitic ulcer is less irregular in outline; its edges are less ragged. C. E. SAJOUS, Ed., iv. D-72.]

HYPERTROPHY OF THE TONSILS. Case of severe hæmorrhage after tonsillotomy. Statistics showing 64 recorded cases,—3 children and 61 adults. *Price Brown*, iv. D-72.

Bleeding common in children whose tonsils are not large at the time of operation. Cocaine promotes bleeding. *Ingals*, iv. D-73.

Four alarming cases of hæmorrhage. *Daly*, iv. D-73.

Two hæmorrhages in children; operator should always be prepared for an abnormal distribution of vessels. *Shurly*, iv. D-73.

Reliable galvano-cautery should be at hand to use, if necessary, as an hæmostatic. *Casselberry*, iv. D-73.

Case of severe hæmorrhage following tonsillotomy. Digital compression useless. Hæmorrhoidal forceps applied about the stump and a ligature placed above it. *Kenyon*, iv. D-73.

[Chances of hæmorrhage greatly reduced by a few preliminary stabs with the galvano-cautery broad knife. An imaginary perpendicular line is drawn close to the base of tonsils, and the knife deeply inserted two or three times, the cuts following the axis of the imaginary line. Secondary contraction limits the lumen of the vessels. Three

weeks later the tonsils may be amputated. C. E. Sajous, Ed., iv. D-73.]

Case of intense dyspnœa after excision of the tonsils. Trouble caused either by irritation of the respiratory nerves or by the toxic action of cocaine, most probably the latter, a 4-per-cent. solution having been applied by means of an atomizer. *G. Walker*, iv. D-73.

[Doubtless due to the cocaine. I have observed a similar case. Thoracic muscles seem to bear the brunt of the paralyzing influence of the drug. If the patient can be urged to assist by voluntarily going through the act of breathing, the dangerous period is safely passed. C. E. Sajous, Ed., iv. D-74.]

Type of hypertrophied and diseased tonsil in which the tonsillotome cannot surround the mass to be excised, but simply presses against the free surface. Best results from use of scissors adapted from Teet's nasal cutting-forceps in conjunction with Farnham's crocodile-jaw forceps. *A. Ames Bliss*, iv. D-74.

Removal of the tonsils with large cold-wire snare. To be preferred when the patient can be anæsthetized or for adults who can stand a little pain. *Farlow*, iv. D-74.

[The removal of tonsils by means of the snare is an extremely painful procedure, especially in hard growths. Ed.]

SYPHILIS OF THE TONSILS. Syphilitic ulcer of the tonsils ranks third among the ulcers of the mouth. Generally single; covers whole tonsillar surface, occasionally extending to pillars and base of tongue; affects right tonsil more frequently than the left. Erosive form most common, giving rise to slight redness and swelling. Ulcerative form causes pain, dysphagia, reddish-brown, gray, or yellowish ulcers. Anginal form least frequent; much pain and dysphagia, with general disturbance of system. Differential diagnosis, chief point to bear in mind is character of the associated adenopathy. *Fournier*, iv. D-76, 77.

Differential diagnosis between chancre and epithelioma of the tonsil very difficult. In chancre glandular enlargement generally occurs earlier. Chancre tends to heal, cancer to extend. *Dieulafoy*, iv. D-77.

Case of syphilis of the tonsils which for several weeks was regarded as one of diphtheria, then fibrinous angina, and finally as a sarcoma. *Sendziak*, iv. D-77.

Cases of chancre of the tonsil. *H. B. Hitz, B. Wolff, T. C. Evans*, iv. D-77.

TUMORS OF TONSILS.

LYMPHADENOMA. Two cases in patients about 60 years old. In both glandular enlargement in the neck, axillæ, and groin; spleen not enlarged. Operations in these cases seem to increase the symptoms; should only be performed when suffocation is threatened. *Cartaz*, iv. D-75.

Case in which Moure was obliged to remove a portion of the tonsil; operation followed by serious symptoms; death rapidly supervened. *Beausoleil*, iv. D-75.

Case of lymphoma of the tonsil. *J. F. Gibb*, iv. D-75.

LIPOMA. Up to the present time lipomata of tonsil not observed. Case in a child, tumor being light yellow and pedunculated. *Onodi*, iv. D-75.

PAPILLOMA. Extremely rare in the tonsils; case with numberless papillæ or pedunculated masses packed closely together. *Machell*, iv. D-75, 76.

SARCOMA. Case of lymphosarcoma; repeated removals, rapid recurrence. *Charnley*, iv. D-76.

Two fatal cases, death from ligation of the carotid in one. *Lanphear*, iv. D-76.

Cases of sarcoma of the tonsil. *Roswell Park, Verrall*, iv. D-76.

Case of round-celled sarcoma treated by erysipelas and prodigiosus toxins after excision greatly improved. *Chamberlin*, iv. D-76.

Case of primary sarcoma of tonsil, removed by lateral pharyngotomy, with recovery. *Tauber*, iv. D-76.

Case of sarcoma of the neck involving the tonsil and causing deafness. *Gorham Bacon*, iv. D-76.

TORTICOLLIS.

Fifteen cases illustrating relationship between wryneck and congenital hæmatoma of the sterno-mastoid, due to intra-uterine injuries at time of birth. Predisposes children who are otherwise healthy. *D'Arcy Power*, iii. G-26, 27.

DIAGNOSIS. Rheumatism of vertebral articulations of neck as source of error in establishing diagnosis. Importance of carefully observing appearance and progress of symptoms in doubtful cases. *Lannelongue*, iii. G-27.

Several personal cases showing frequent coincidence of shoulder presentations and torticollis. *Koettnitz*, iii. G-27.

Injury to sterno-mastoid muscle may be frequent, but injury sufficient to produce marked symptoms rare. Damage to sterno-mastoid an accident to be guarded against by obstetricians; properly-made forceps, avoidance of twisting of neck, intelligent manipulation of child when manual interference needed. *Pincus*, iii. G-27.

Rachitic torticollis rare; diagnosis often difficult, especially when torticollis only manifestation of rachitis. Several months after appearance of torticollis epiphyses swell, legs become deformed, etc., and the picture of rachitis finally complete. *Legay*, iii. G-27.

TORTICOLLIS (continued).

TREATMENT. Only case successfully operated for long-standing spasmodic torticollis that of Campbell de Morgan, who excised piece of spinal accessory nerve of affected side. Case in which piece of spinal accessory one-third inch long removed and subsequently pieces of external divisions of second, third, and fourth posterior branches of cervicals obtained permanent recovery. *Noble Smith*, iii. G-27, 28.

Palliative treatment, drugs, apparatus, or electricity rarely successful in spasmodic torticollis. Massage may prove useful in recent cases. Resection practically only rational remedy. Operation on spinal accessory may afford relief, even if other muscles than sterno-cleido-mastoid affected. No fear of paralysis need be had; head held erect even after most extensive resection. *Richardson and Walton*, iii. G-28.

In several cases only treatment extirpation of contracted sterno-mastoid. Subcutaneous or open division unsatisfactory. Partial operations followed by relapse. Seventeen cases treated by extirpation, all satisfactory. Where no secondary changes in vertebræ, restoration of normal position of head rapid. Flattening of the side of the neck as result. Massage and passive movements only in cases in which there are organic changes in the vertebræ. *Mikulicz*, iii. G-28, 29.

Extirpation of sterno-mastoid objectionable. In no way remedies spinal curvature, —a very essential item in serious cases. Forcible reduction of cervical scoliosis by gradual lateral pressure, so as to mold bodies of affected vertebræ into shape recommended. *Lorenz*, iii. G-29.

When head again brought into median plane, it must be kept there by wearing of a splint, insuring perfect rest and favoring rapid union of wound. *E. Eliot, Jr.*, iii. G-29, 30.

Case in which stretching of right accessory nerve was followed by return of symptoms. Solution containing $2\frac{1}{2}$ grains curare and 167 minims water, used hypodermically, half a syringeful at first, increased until tremulousness induced. *Weiss*, iii. G-30.

TRACHEOTOMY.

Twenty-five tracheotomies in children under 12 years of age. Statistics of Fischer quoted, showing dependence of results for diphtheria upon type of disease, proving increased mortality when an epidemic of scarlet fever or diphtheria exists at the same time. Other main conditions influencing result: Existence or not of pneumonia and extent to which symptoms of asphyxia have been allowed to progress. *Gamgee*, iv. D-107.

Seven cases of suture of the tracheal wound after tracheotomy, three personal. If glottis free it is not necessary for trachea to be hermetically sutured. Sufficient to draw edges of wound together to induce union by first intention. *Krasnobaïeff*, iv. D-107.

Two cases of fatal bleeding following tracheotomy performed for diphtheria. Both showed a perforation of trachea communicating with the innominate artery, which was also perforated. *Buchholz*, iv. D-107.

Intubation always preferable to tracheotomy for children under 2 years and nearly always for those under 7. *Courtade*, iv. D-108.

TREMOR.

Apparatus to record tremor composed of two of Marey's drums. *Le Filliâtre*, ii. C-24, 25.

No distinction between senile and hereditary tremor. "Neurosis tremularis" proposed as single nosological type. *Raynaud*, ii. C-24.

Tremor of lips, tongue, and hands, and of legs when standing, as result of fright. *Jelly*, ii. C-24.

Tremor due to intermittent or sudden variations in intensity of muscular tonus. *Arnould*, ii. C-24.

Case in which tremor limited to upper limbs, increased by erect position on rising. Result of a fall with fracture of a condyle of humerus. *Baumel*, ii. C-24.

MERCURIAL TREMOR. Hyoscyamine, $\frac{1}{16}$ grain, in medium cases, and $\frac{1}{8}$ grain in severe cases; between meals. Milk diet and sulphur-baths concurrently. *Bruger*, ii. C-25.

TRICHINA SPIRALIS.

View that embryos are born within lumen incorrect; female intestinal trichinæ alone penetrate the intestinal tissues. Embryos deposited within or near lymph-vessels, and from here gain admission to muscles through circulation. *Askanazy*, i. D-75 to 78.

Fourteen per cent. of bodies in Buffalo University dissecting-rooms found to contain trichinæ. *Thornbury*, i. D-78.

Experiments invalidating view that adult female trichinæ migrate from intestinal lumen by way of lymph-channels of mesentery to lymph-glands, where they bring forth their young. *Geisse*, i. D-78.

Falsity of statements made by European authors that American pork-packers feed offal to swine and spread trichinosis in that way. *Stiles*, i. D-78, 79.

TRISMUS NEONATORUM.

First, castor-oil; then, if kidneys do not perform their part, minute doses of pilocarpine hydrochlorate. For spasmodic condition, tincture of solanum Carolinense, 7-drop doses, every three hours; then every two hours; finally increased to 15 drops

every two or three hours. *J. W. Marcy*, v. A-147.

TUBERCULOSIS, LARYNGEAL.

PATHOGENESIS. Recent bacteriological progress has led to a modification of the literal interpretation of Koch's postulates regarding the relations of germs to disease. Now thought that bacteria can get through epithelium and, in some instances, seem to be destroyed by phagocytosis. Louis's theory of corrosive sputa abandoned, but many patients are not examined. Pyogenic cocci may first make a breech in the epithelium through which the bacillus enters. *Jonathan Wright*, iv. D-81, 82.

Micrococci being at rest on the epithelial surface between the attacks of coughing, especially during sleep, may find their way into the interstices between the cells. Some are removed by phagocytes; others, by reason of their numbers, succeed in establishing themselves. Abscess forms, increases in depth, reaches submucous tissue, and causes infection. *Richard Lake*, iv. D-82.

Eighty per cent. of all cases can be easily diagnosed; great care needed in the remaining 20 per cent. Perhaps one-half cannot be definitely diagnosed without the aid of iodides and the microscope. *Rice*, iv. D-83.

TREATMENT. Curettement analogous to excision; removes focus of infection. Indications: (1) primary tuberculous disease without lung complication; (2) cases with concomitant lung disease, incipient or arrested before softening or hectic; (3) circumscribed ulcerations and infiltrations; (4) dense hard swelling of arytenoid region, ventricular band, posterior wall, tuberculous tumors, and affections of the epiglottis; (5) advanced lung disease with distressing dysphagia. Absolute quiet after operation; daily applications of lactic acid and pyoktanin (1 or 2 per cent.). Cicatrization in from seven to twenty-eight days. Ulcerations well defined do better than shallow ones. Dense infiltrations do better than œdematous conditions. *Gleitsmann*, iv. D-83.

In a case curetted two weeks before the patient's death ulcer healed and patient's last days rendered much more comfortable. *T. Morris Murray*, iv. D-84.

Four recoveries from laryngeal and pharyngeal ulcerations by simply rubbing in lactic acid, without previous scraping. In deeper cases curettement best. *Ingals*, iv. D-84.

Recovery obtained in some laryngeal cases under diet and inhalations, especially iodoform, with which patient was saturated. *Daly*, iv. D-84.

Skepticism as to treatment of laryngeal tuberculosis. Cases reported cured have been limited to the first stage of the disease. Very few cases are suitable for Krause's and Heryng's method. *Wright*, iv. D-84.

In all cases where tuberculous ulcers are complicated with advanced infiltration or granulations, surgical treatment is necessary. High fever and weakness form no absolute contra-indication. Simple ulcers surrounded by only slight infiltration are best treated by lactic acid. *Krause*, iv. D-84.

The most important indication is removal of the dysphagia and relief of the dyspnœa. Cure of deep ulcers most quickly and certainly effected by surgical means. In rare cases complete cure obtained. In any case, dysphagia, dysphonia, and dyspnœa can be relieved. *Heryng*, iv. D-84, 85.

Cases greatly relieved, especially when there is enormous swelling in the arytenoid region preventing swallowing. *Luc*, iv. D-85.

Strongly in favor of this operation. *Delartan*, iv. D-85.

Much benefit from curetting followed by the application of lactic acid. *Lennox Browne*, iv. D-85.

Careful choice of cases necessary; operations not justifiable until milder measures have been tried and have failed. *De Roaldes*, iv. D-85.

Best palliative at our command a judicious application of lactic acid and curettement, or both combined. *Levy*, iv. D-85, 86.

Thorough cleansing important, in order to limit the action of irritating sputum. Carbolic acid in from 1- to 3-per-cent. solution in glycerin, balsam of Peru, creasote in inhalation, menthol in 20-per-cent. solution in olive-oil or glycerin, iodoform and iodol in insufflation, all, locally applied, valuable. *Hajek*, iv. D-86.

Local submucous injections of ℞ Creasote, 1 to 2 drachms; castor-oil, 3 drachms; oil of gaultheria, 3 drachms; oil of hydrocarbon, 1 drachm; menthol, 10 grains. Larynx thoroughly cleansed with 10-per-cent. solution of cocaine, applied using automatic laryngeal syringe of own design. *Chappell*, iv. D-86.

Parachlorphenol tried in 26 cases; 10 cured. Mixed with glycerin in various proportions causes no irritation, has a soothing effect, a cicatrizing action. *Spengler*, iv. D-86.

Creolin and lanolin energetically rubbed into the body, each application lasting from fifteen to twenty minutes. *Shadewald* iv. D-87.

Three cases in which the local application of a 5-per-cent. solution of monochlorphenol produced palliative results. Patients able to swallow food much more freely. Miscible with light petroleum-oils and freely with glycerin. *Thompson*, iv. D-87.

Seven cases treated with Paquin's antituberculous serum; all greatly improved. *A. W. Loeb*, iv. D-87.

TUBERCULOSIS, LARYNGEAL (continued).

Lacto-carbolized glycerin. ℞ Neutral glycerin, 5 drachms; carbolic acid, 15 minims; lactic acid, 30 minims. As tolerance of patient increases, two acids are increased twofold to fivefold. Five years' experience has shown it to be the best topical agent at our disposal. *Botey*, iv. D-87.

Cases of recovery by means of Krause's method. *Gleitsmann*, iv. D-88.

Case of recovery. Patient treated with injections of menthol in oil. Examination nearly eight years afterward revealed scars in the position of the old ulcerations. *A. Rosenberg*, iv. D-88.

Case of recovery. Curette and lactic acid first used without benefit. Similar result from iodoform and silver nitrate. Region again curetted and pure ichthyol applied; immediate favorable response. Woman in very good health. *Harris*, iv. D-88.

Case of tubercular ulceration of epiglottis successfully treated by curetting and lactic acid. *Symonds*, iv. D-88.

Occasional occurrence of spontaneous healing of localized tubercle of the epiglottis without treatment. *Clifford Beale*, iv. D-88.

Case of a boy with destructive ulceration of the epiglottis which healed completely under simple application of iodoform. *Butlin*, iv. D-88.

Case of spontaneous cure in which pharynx showed pale-bluish œdema similar to that seen in tubercular cases. *McBride*, iv. D-88.

Recovery in seven cases of laryngeal tuberculosis. First indication to improve general health, residence in the country if possible. As to lesion, repose of the organs; most active local drugs, lactic acid, iodoform, and iodol. Curettage not indispensable. Creasote causes digestive disturbances. *Bergengrün*, iv. D-88, 89.

Ten cases of tuberculosis of the larynx and lungs treated by Liebreich's cantharidine method; no effect observed on the local affection. *Grabower*, iv. A-40.

TUBERCULOSIS, PULMONARY.

HEREDITY. One thousand cases showing that the influence of heredity cannot be put higher than 9 per cent. of cases among the children of phthisical parents in excess of the cases occurring among the children of non-phthisical parents. Children of phthisical patients contract disease earlier because they are exposed to the infection at home. *Squire*, i. A-4.

Heredity ranked with such factors as insufficient and imperfect food and defective hygiene, as regards importance. *Sims Woodhead*, i. A-4.

Bacillus of tuberculosis found in the blood of placental end of umbilical vein of fœtus in two cases in which the mothers suffered from advanced pulmonary tuberculosis. *Bar and Rénon*, i. A-4, 5.

Tubercles found in three placentas; in their villi overgrowth of endothelium seemed to form a barrier hindering, to a degree, spread of tubercle to fœtal circulation. *Schmorl and Kockel*, i. A-5.

Study of two tuberculous cows killed during pregnancy tending to support view of Birch-Hirschfeld, that mode in which tubercle bacilli pass from maternal to fœtal circulation is by "going through" placenta. *Kockel and Lungwitz*, i. A-5.

Of 250 cases percentage of females higher among the hereditary than among acquired cases. Female hereditary cases attacked earlier and more of them die within eighteen months. Results better among acquired than among hereditary. Comparing totals of parental, maternal, and acquired cases, writer's statistics show that the most benefited are: first, the acquired; second, the maternal; third, the paternal. *Solly*, i. A-5, 6.

[The doctrine of heredity in tuberculous diseases, especially in regard to pulmonary tuberculosis, is a stumbling-block in the way of progress. Clinically, tuberculosis may be congenital and directly transmitted from the mother; but the cases are few. Infants peculiarly exposed to infection from tuberculous parents and surroundings. Disease then acquired. To speak of consumption as hereditary in the case of an adult who develops it, because a parent or a grandparent had it, is to strain the meaning of the word hereditary. J. C. Wilson, Assoc. Ed., i. A-6.]

PATHOLOGY. We should hesitate before fully accepting prevailing view that the pathogenic element of tuberculosis is a parasitic organism which is transmissible only from animal to animal and incapable of vegetative existence outside the animal body. Observations which tend to show that bacteria formerly looked upon as monomorphic are only stages in development of more complex forms. *Coppen Jones*, i. A-6.

Varying course of phthisis in different subjects explained by absence or presence of micro-organisms other than tubercle bacillus. Tubercle bacillus responsible for tubercle nodule solely. *Maragliano*, i. A-7.

Only a small percentage of cases of pulmonary phthisis may be said to represent pure tubercular disease. Distinction made by sputum examination. In such cases streptococci infect lung-tissue and cause inflammation; this, in turn, produces characteristic symptoms of phthisis,—night-sweats, loss of appetite, etc. *Spengler*, i. A-7.

Cases in support of view that tubercle bacilli can, without presence of added bacterial infection, cause changes in the lung,

giving rise to symptoms of acute pneumonia in chronic or latent phthisis. *Elsner Kinnieut*, i. A-7, 8.

Tubercle bacillus sometimes found only in lesions of typical tuberculosis, no bacillus whatever being present in pneumonic foci. *Tedel*, i. A-8.

Possibility of microbian combinations is a fact which to-day requires no further demonstration. *Barozzi*, i. A-8.

Autopsy in a case of mixed infection of the aspergillus fumigatus. In cases of mixed infection aspergillus first attacks lung and paves the way for tubercle bacillus; when latter has gained a foot-hold aspergillus disappears. *Gaucher and Sergent*, i. A-8.

Study of nutrition in diabetes and tuberculosis; tendency of both affections to diminished nutrition and destruction of organism, abundant elimination by the urine of organic and mineral *débris*, diminished respiratory function, etc. In diabetes the tissues, becoming impregnated with sugar, prepare the soil for the tubercular bacilli. *Sauvage*, i. A-9.

Necrosis of visceral epithelium frequent in tuberculosis when disease assumes an acute or subacute form. *Leredde*, i. A-9.

[The microscopical area of necrosis in the viscera in diphtheria and in enteric fever lends support to this view. J. C. Wilson, Assoc. Ed., i. A-9.]

Seven cases of arthritic diathesis with tuberculosis; in one case both lungs found studded with small cavities, mostly obliterated or cicatrized by formation of fibrous connective tissue. Case supports view that there is an antagonism between arthritic diathesis and tuberculosis. *Sarda and Virès*, i. A-9.

Relations of diphtheria and tuberculosis: there is a family predisposition in both; soil favorable to diphtheria is equally favorable to tuberculosis. *Revilliod*, i. A-9.

At autopsy of several children dying from diphtheria, in spite of antitoxin injections, tubercular lesions found. *Variot*, i. A-9.

Eighteen cases tending to confirm assertion that hysteria influences favorably the evolution of pulmonary tuberculosis. *Gibotteau*, i. A-10.

Fibrin constantly present in granulations of the interstitial tissue of the human lung and in the vessel-walls. Analogous fibrin seen in tubercles of other organs, its production being attributable to action of tubercle bacillus. *Falk*, i. A-10, 11.

In tuberculosis of infancy streptococci and influenza bacilli frequently observed; almost constant alteration of the bronchial glands present. *Kossel*, i. A-11.

Study of 305 cases. Heart of phthisical subjects observed to be, relatively to the body, decidedly too small at the time of puberty. A small heart predisposes to tuberculosis. *Oppenheimer*, i. A-11.

Primary tuberculosis primarily due to lymph-stasis, congenital or acquired. Tubercle bacillus the phenomenon expressive of the disease; it is therefore symptomatic and not etiological; scrofula is merely a pretubercular stage. *F. S. Parsons*, i. A-11.

Products of tuberculosis as we find them are not due to stasis, but to bacillary invasion. Experiments on animals are far too complete for us to doubt this. *Von Ruck*, i. A-11, 12.

Foundation of pulmonary consumption lies not in the bacillus, but in the nervous system in general and in the nerve-supply in particular. Not a contagious disease. *J. Mays*, i. A-12.

PROPAGATION. Three epidemics in small rural communities in the Basses-Alpes, which tend to further prove infectious character of the disease. *Bee*, i. A-12.

Striking instance of the infectivity of phthisis pulmonalis. *C. O. Maisch*, i. A-12, 13.

[A similar instance came under my observation. J. C. Wilson, Assoc. Ed., i. A-13.]

In Prussian prisons, deaths per 10,000 from tuberculosis, 118.9 from 1875 to 1876; since application of prophylactic measures, proportion below 25. Dissemination of tuberculosis should be combated with more energy than ever. *Cornet*, i. A-13, 14.

Apathy and indifference of individuals on the subject to be regretted. *Virchow*, i. A-14.

In Paris hospitals tuberculosis decimates the lay attendants. At Necker half the attendants take phthisis. *Marfan*, i. A-14.

In Brompton Hospital 15,000 cases of phthisis treated in twenty years. No doctor, chaplain, superintendent, or other official affected with pulmonary disease. *Doischevallier*, i. A-14.

Chambers of tuberculous patients carefully disinfected: the tissues with a Geneste and Herscher stove; furniture wiped with a cotton cloth dipped in a 1 to 1000 corrosive-sublimate solution; floor washed and scrubbed, then washed with the solution. Dust from places most difficult to disinfect inoculated into guinea-pigs; results prove that methods of cleansing and disinfection now employed entirely efficacious in preventing contagion. *Lalesque and Rivière*, i. A-14, 15.

Koch bacilli constantly present in excrement of a young bull fed on tuberculous lung. Fæcal matter virulent and capable of propagating tuberculosis. *Cadéae and Bournay*, i. A-15.

In Portugal, of 567,840 animals examined, 1136 found to be phthisical; animals giving the most milk are those most frequently affected. *Nogueira*, i. A-15.

TUBERCULOSIS, PULMONARY (continued).

In stables where tuberculosis has existed proportion of tuberculous animals always considerable. *Nocard*, i. A-15.

Danger of infection by milk greatest to the weak and those predisposed by heredity. *Parsons*, i. A-15.

Proportion of 3.4 per cent. per 1000 tuberculous cows in the Department of the Seine. Consumption of flesh and milk of domestic animals not the cause of the terrible mortality. *Alexandre*, i. A-15.

Discovery of tubercle bacilli in human milk. Of five cases bacilli in abundance in two cases that had marked tubercular symptoms. Mammary glands of both cases apparently free from disease. *Coles, D. Braden Kyle*, i. A-15.

In man and mammals there exist cases of tuberculosis of the avian type. Bacilli of human tuberculosis artificially grown are less virulent than when used direct. *Pansini*, i. A-15, 16.

Human tuberculosis is inoculable into fowls in a proportion of 10 per cent. Receptivity of parrot greater; of three parrots inoculated, disease developed in all. The parrot, in turn, can convey the infection to man. *Cadiot, Gilbert, and Roger*, i. A-16.

LOCAL INFECTION. Inoculation of tuberculosis in two cases by tattooing. *Hutchinson*, i. A-16.

Inoculation into the tissues very rare, though possibility conceded. *Woodhead*, i. A-16.

Case of contamination through the skin by washing handkerchiefs of a consumptive. *J. C. White*, i. A-16.

Similar case in which tuberculous sores appeared about the knuckles, and four months afterward phthisis. *Graham*, i. A-17.

Experiments showing that tubercular infection may be conveyed through the genital apparatus from man to woman and *vice versâ*, but only when there are present in these organs tubercular foci. *Dobroklonsky*, i. A-17.

Experiments to determine presence of bacilli in genital glands of tuberculous individuals. Eventual existence of tubercle bacilli in the semen of tuberculous individuals must be considered as certain. *Jaeckh*, i. A-17.

Tubercle bacillus in the genital apparatus of phthisical patients never found after extensive research and inoculation experiments. *Walther*, i. A-17.

COMPLICATIONS. Question whether tuberculous coxalgia had not formed starting-point of the disease, and whether, in the absence of any discoverable pulmonary lesion, mitral sclerosis could not be attributed to the action on the mitral valves of tuberculous toxin secreted by bony abscesses. *Giraudeau*, i. A-17, 18.

Statement that tuberculosis does not affect the heart is incorrect; it may be observed in a half or a third of the cases of miliary tubercle. *Leyden*, i. A-18.

Several cases of endocarditis in phthisical patients examined; bacillus of tuberculosis in limited numbers always found. *Michaelis*, i. A-18.

Case of periodical paroxysmal tachycardia in a tuberculous patient. *Moncorgé*, i. A-18.

One of the symptoms revealing renal tuberculosis is true hæmaturia, characterized by the presence of hæmatins in the urine. *Jaccoud*, i. A-18.

1. Association of cancer with tuberculosis of lymphatic glands may be mistaken for metastatic foci. 2. General and local influence of cancer and resulting inflammation may rouse into activity a latent tuberculosis. *G. Clément*, i. A-19.

Case of pulmonary tuberculosis complicated by epithelioma of the larynx. *Jakins*, i. A-19.

Mortality from tuberculosis is greater in the negro than the white race; in them it runs a more rapid course, is rarely cured or arrested, becoming much more widely diffused throughout the bodily tissues and organs. *Bondurant*, i. A-19.

[This observation is in accord with the general experience in the North. J. C. Wilson, Assoc. Ed., i. A-19.]

Frequency of tuberculosis among the insane due to hospitalization; chronic insane most liable to tuberculosis. *Babcock*, i. A-20.

There is no worse combination than tuberculosis of the lungs and syphilis. Syphilitics should practice careful buccal antisepsis. *Jacquinet*, i. A-20.

Case of acute meningitis in a patient suffering from advanced phthisis. *Vintras*, i. A-20.

Fatal case of purpura hæmorrhagica in a tuberculous patient. *Galliard and Marchais*, i. A-20.

Rare case of medical septicæmia secondary to tuberculosis; multiple cutaneous nodules, icterus, hæmorrhage; and a subacute evolution, ending in death. *Etienne and Specker*, i. A-20.

Case of multiple abscesses of the liver and extensive tuberculosis. *Bruce*, i. A-20.

DIAGNOSIS. Considerable importance attached to the value of spirometry, pneumatometry, measurements of circumference, and diameters of chest in natural and full inspiration. (See text.) *Otis*, i. A-20, 21.

Early diagnosis in tuberculosis established by observing roughness of inspiration at apex. When this symptom is present it is sufficient, but when associated with functional signs diagnosis confirmed. *Grancher*, i. A-22.

[Interrupted, or cog-wheel, inspiration also an early sign. In a case recently observed a high, shrill, bronchial, inspirating sound, under the right clavicle at the end of deep breathing, was, with interrupted inspiration in lighter breathing, the earliest physical sign in a female aged 22. J. C. Wilson, Assoc. Ed., i. A-22.]

State of thoracic resonance should be systematically studied. When the ear applied to interscapular region at level of second dorsal vertebra and anterior edge of clavicles lightly percussed, a vibrating murmur perceived. These vibrations can only occur when apices healthy. Higher pitch, of less intensity, dull timbre, and dry, indicates a change. *Larcher*, i. A-22, 23.

Though cracked-pot sound signifies practically a tuberculous cavity, this symptom met with in several other affections,—pneumonia, pleurisy, etc.,—and when there is liquid or thick, false membranes below the clavicle, etc. *Galliard*, i. A-23.

[A cracked-pot sound may be observed in infants in whom there is no tuberculous disease of the lungs upon forcible percussion. J. C. Wilson, Assoc. Ed., i. A-23.]

Earliest two signs of phthisis are the diminution and roughness of the vesicular murmur under the clavicle and the presence of Koch's bacillus in the sputum. *Hanot*, i. A-23.

New diaphragmatic phenomenon, a sort of undulating line extending from vertebral column to seventh rib and synchronous with movements of diaphragm. Normally this line can be seen on thoracic walls. In emphysema line lower and more limited. In pleurisy with effusion also. If line above zone of dullness, case is one of subphrenic abscess; if below, one of pleuritic exudation. *Litten*, i. A-23, 24.

Disparity of upper portion of chest due to fact that the right superior bronchus intensifies vibrations, reaching ear of examiner by a shorter route than on the left side. *Cary*, i. A-24.

Acute miliary tuberculosis may follow its evolution without fever. *Falkner*, i. A-24.

Peculiar deformity of the posterior thoracic wall in cases of fibrous tuberculosis, an inclination of the scapula; lower angle leans toward the axilla, while spine inclines from above downward and from without inward. *Boullaud*, i. A-24.

Behind what appears to be a true form of vicarious menstruation there may lurk a latent tuberculosis. Illustrative case. *Köber*, i. A-24, 25.

Case in which it was difficult to make a diagnosis during any stage of the illness. Resemblance to splenomegaly with hepatic cirrhosis striking. Expectoration at no time. *A. J. Richardson*, i. A-25.

Only reliable method of examining sputum is to select portion to be mounted in such a manner as to be sure that organism is contained in the sample. To latter add equal volume of a 3-per-cent. solution of sodium hydrate, shake well, and place aside. After a few hours draw from bottom of bottle with a pipette what sediment may be present; centrifugate this sediment about three minutes. If bacillus present, it will go to the bottom and invariably be present in first mount. *Bissell*, i. A-25, 26.

New method for preparation of sputum. (See text.) *Spengler*, i. A-26.

Difficulty frequently experienced in detecting bacilli or fibres owing to the sparse numbers in which either may be present. Modification of hæmatokrit of Blitz-Kedin, calibre of glass tube being $2\frac{1}{2}$ millimetres in diameter and about 50 millimetres in length. *Ashton and Stewart*, i. A-26.

[The work of Ashton and Stewart, in my clinic at the Jefferson Hospital, has yielded most satisfactory results in cases of incipient pulmonary tuberculosis with obscure signs and scanty expectoration. J. C. Wilson, Assoc. Ed., i. A-26.]

Methods for staining tubercle bacilli in sputum. (See text.) *Benysek*, i. A-26, 27.

No physician should decide that a lung disease is non-tubercular until he has before him a complete record of the patient's temperature showing no recurring daily elevation for a period of two weeks. *Ingraham*, i. A-27.

Importance of frequent observations of temperature in diagnosis emphasized. *Walter Channing*, i. A-27.

Elevated temperature in tuberculosis always atypical. Febrile temperature not at all times present, even in pulmonary tuberculosis; may be absent for weeks in peritoneal tuberculosis, for months in articular tuberculosis, for years in glandular and cerebral tuberculosis, although a fresh bacillary invasion from cheesy foci may rapidly prove fatal. *R. H. Fitz*, i. A-27.

In inflammation of serous membranes, non-tubercular as well as tubercular, there is no definite relation between lesions and temperature. Tuberculin injections for diagnostic purposes seem of real value. *F. C. Shattuck*, i. A-27, 28.

In children, high temperature, by its irregular progress, often leads to the disease being mistaken for malaria. Significant characteristic,—that of falling below normal at various periods of the day, for days and even weeks. *Martinez Fargas*, i. A-28.

Patient exhibiting a daily rise of temperature of from a little under one degree or a fraction above, and showing this rise regularly for seven or eight weeks, diagnosis of tuberculosis after having eliminated all other sources. *Hazle Padgett*, i. A-28.

[The importance of an occasional inverse

TUBERCULOSIS, PULMONARY (continued).

temperature is not to be overlooked. J. C. WILSON, Assoc. Ed., i. A-28.]

PROGNOSIS. Any case of phthisis in which the average of urinary solids reaches one ounce may be looked upon, with certain exceptions, as having arrived at the cachectic stage so far as nutrition is concerned. Cases improving under treatment excrete more solids if weight stationary or less solids if increase in weight, provided fever, diarrhœa, or appreciable night-sweats absent. In cases which become worse, steady diminution in solids without any increase in weight stands in relation with an aggravation of the malady. *Robin*, i. A-28.

Intense red border on the gums of grave prognostic importance. *Andreesen*, i. A-29.

When inoculations do not cause tuberculosis in a rabbit, case is one of an attenuated, benign, and scrofulous form, a favorable prognosis warranted. *Courmont and Denis*, i. A-29.

PREDISPOSING CONDITIONS AND HABITS. Pretuberculous polyuria met with only in men between the ages of 20 and 30 years, the nervous temperament being the most predisposed. *David*, i. A-29.

[The term "pretubercular polyuria" is a misnomer and is misleading. If the polyuria be due to tuberculous processes, it is "tuberculous," and not "pretuberculous." J. C. WILSON, Assoc. Ed., i. A-29.]

Certain number of cases in which appearance of albumin in the urine preceded symptoms of pulmonary tuberculosis. Intermittent. Alternating with attacks of pulmonary congestion. *Teissier*, i. A-29.

Frequency of phthisis in elderly men, in whom association of emphysema and bronchial catarrh may modify the usual symptoms. Dyspnœa and dilatation of right heart present, chief symptom lack of nutrition. Differential diagnosis with chronic bronchial catarrh and bronchiectasis. *Potain*, i. A-29, 30.

Disturbed nutrition characterized by a diminution and slackening of organic exchange and oxidation. *Michel*, i. A-30.

[It is not alone in the elderly that a substantive or a compensating emphysema may mask the signs of pulmonary tuberculosis. I have seen several cases in young adults in which well-marked bilateral emphysema has obscured the signs of tuberculosis, as shown by rapid failure of health, loss of weight, blood-spitting, and the presence of tubercle bacilli in the sputa. J. C. WILSON, Assoc. Ed., i. A-30.]

Attacks the aged in the same way that it attacks those in earlier life, but in old persons certain secondary changes are commonly found which influence the clinical evolution of the disease; bronchitis, emphysema, and sclerosis the most notable. Insufficiency of air, of exercise, and of nourishment, poverty, and alcoholism important factors. *Barié*, i. A-30.

Influence of alcoholism on phthisis incontestable. Alcohol, being eliminated by the lungs, creates a general and local predisposition which furnishes bacillus of tuberculosis a field favorable to its development. *Lancereaux*, i. A-30.

Closest relations exist between alcoholism and tuberculosis. Alcoholic phthisis usually begins by preference in the posterior portion of the right apex. Progress usually rapid. *Monnier*, i. A-31.

Relation between certain diets and tuberculosis. Two cases in which insufficient and debilitating diet led to incipient tuberculosis. Prudence to be exercised in prescribing a diet in cases in which the least hereditary or personal taint exists. *Plicque*, i. A-31.

TREATMENT. Case of a woman showing marked hereditary taint; myriads of tubercle bacilli in sputum and signs of consolidation at right apex and left base. Diet of albumen of two dozen eggs daily and $\frac{1}{100}$ grain of strychnia nitrate with $\frac{1}{1000}$ grain atropine sulphate subcutaneously every two hours, besides $\frac{1}{50}$ grain strychnia nitrate and $\frac{1}{12}$ grain chloride of gold and sodium and $\frac{1}{2}$ grain of a vegetable digestive every two hours by the mouth. After a few days gold and sodium increased to $\frac{1}{8}$ grain every two hours, with codliver-oil inunctions, general massage, and passive movements once daily. Incipient strychnia poisoning at first, but drug soon tolerated and pushed to borderline of toxic action. In two months normal weight regained, tubercle bacilli gone, and marked physical signs also. Sent to mountains, from which patient returned four months later in perfect health. Recurrence in two years, all symptoms returning. Same treatment, followed by return of health. *William Pepper*, i. A-4.

SERUM-THERAPY. Horse-blood serum may be rendered more antagonistic to tuberculosis than it naturally is by repeated immunization. Number of cases treated and improved. *Paquin*, i. A-31.

Post-mortem from case treated with Paquin serum showing favorable influences on cavities. *Lutz*, i. A-31, 32.

Of twenty-five cases treated with Paquin serum all improved, climate of locality coming in for a share in the results. *Shropshire*, i. A-32.

Case of acute tuberculosis treated with Paquin's serum markedly improved. *Lemen*, i. A-32.

Experiments justifying conclusion that Paquin's serum has no influence in prolonging the life of guinea-pigs. *Von Ruck, Hewetson*, i. A-32, 33.

Injections of simple primary serum from the blood of the mule. Results not such as to warrant a continuation of the treatment. *Ingraham*, i. A-33.

Experiments with the serum of mules and asses. Has but a feeble preventive action against tuberculous virus in the guinea-pig and rabbits. *Redon and Chénot*, i. A-33.

Eight cases treated with immunized goat-serum. In 3, in the first stage, improvement remarkable. In 2, second stage, result good. In other 3, presenting cavities, no improvement. *Boinet*, i. A-33.

Serum obtained from dogs, asses, and horses by special procedures. Dogs immunized against intra-venous injections of very active tuberculous matter taken from the human subject. Serum tried clinically in eighty-two cases. Satisfactory results not to be expected in advanced cases. *Maragliano*, i. A-33, 34.

[At the recent (April, '96) Legurian Congress Lucatello gave the results of 492 cases of tuberculosis treated with the Maragliano method by Natian practitioners. All these cases were well marked,—most of them grave,—but after the serum injections 90 per cent. are said to have shown diminished pyrexia, arrest of pulmonary lesion, and increased body-weight. ED.]

Twelve cases; in all fever markedly diminished, cough and expectoration decreased, appetite and weight increased. *Marucci*, i. A-34, 35.

Three cases which seem to lend weight to Maragliano's observations. *Carlucci*, i. A-35.

[According to Semmola, "it is permissible to believe that a phthisical patient, supposedly cured by serum-therapy, simply because the body-weight has increased and fever and bacilli have disappeared, is, in reality, not cured, and that relapse is inevitable sooner or later; any good clinician who wishes to prove the contrary should wait, at least, several years before publishing his triumphs to the world, in order not to abuse the credulity of patients." ED., i. A-35.]

In the present state of science it is not unreasonable to suppose that Behring's law will eventually be applied to the case of tuberculous infection. *Maffuci and di Vestea*, i. A-35, 36.

The essential facts of tuberculosis are against the expectation of a serum remedy. *Catto*, i. A-36.

TUBERCULIN AND ANTIPHTHISIN. Post-mortem appearance of a case treated four years previously by Koch's method. Right lung found to contain caseous nodule surrounded by thick, fibrous capsule. Whole upper third of lung occupied by cavity with an extremely-thick, fibrous wall. *Sinclair Coghill*, i. A-36.

Post-mortem of a man treated by Koch; adhesions at both apices found. Apices showing well-marked fibroid changes and containing encapsulated, caseous masses, and small, contracted cavities. *Adami*, i. A-36, 37

Most important constituent of tuberculin "tuberculocidin." In all stages exerted a beneficial influence. By other methods "antiphthisin" obtained. Very much like tuberculocidin, but, instead of being made from tuberculin, made directly from ten times concentrated culture-fluid of tubercle bacilli. Special value due to the fact that a larger dosage is allowable, without injurious toxic effects to be expected from large doses of tuberculin. *Klebs*, i. A-37.

Twenty-three cases treated with antiphthisin; improvement considerable. May be administered per rectum or subcutaneously; 1½ fluidrachms for a dose by rectal method; 46 minims subcutaneously. *Denison*, i. A-37.

Good results from use of antiphthisin in a number of cases, under cautious procedure. *Von Ruck*, i. A-38.

Antiphthisin beneficial in the second stage. *Kinney*, i. A-38.

Antiphthisin our most certain remedy, but not a specific. Seventy-two cases with a complete analysis of thirty-nine cases. *Longstreet Taylor*, i. A-38.

Favorable results reported in no way a specific in tuberculosis. *Gabrilovitsch*, i. A-38.

Remedy can only be effective in cases in which there are no secondary pathological products in the tissues. *Klebs*, i. A-38.

Antiphthisin—practically, highly-diluted tuberculin—possesses no germicidal power on the tubercle bacillus which can be demonstrated *in vitro*. *Trudeau and Baldwin*, i. A-38.

CREASOTE. Experiments showing inhalations have no effect on the bacilli. Doses of 2 to 12 minims daily by the mouth caused greater or less diminution in virulence. *Fyffe*, i. A-39.

Best results from inhalations of creasote obtained by using a muriate-ammonia inhaler. One fluidounce of hydrochloric acid and sulphuric acid carefully mixed in a glass mortar, 20 to 30 drops of a solution of beechwood creasote, containing 1 fluidrachm in 4 fluidrachms of alcohol dropped into it. *Chisholm*, i. A-39.

For fetid expectoration, patient submitted, in a small room made as air-tight as possible, to the fumes of the vapor of coal-tar creasote. Inhalation at first half an hour, and later increased to one and one-half hours. *Chaplin*, i. A-39.

Suppositories containing 4½ to 7¾ minims of creasote well borne, absorption rapid, improvement marked. *Blanc*, i. A-40.

Rectal injections the most satisfactory

TUBERCULOSIS, PULMONARY (continued).

method of administering creasote. *Annequin*, i. A-40.

Four hundred cases showing creasote to be almost a specific. Capsules mixed with codliver-oil in proportion of 1 to 2, immediately after eating, never on an empty stomach. Two-minim doses after each meal, gradually increased till 20-minim dose reached. *Conway*, i. A-40.

Creasote carbonate a non-irritant, non-poisonous preparation containing 92 per cent. of purest creasote ; borne well in large doses by the most delicate stomachs. *Louis Fischer*, i. A-40, 41.

Creasote carbonate recommended as a substitute for creasote, in capsules of 15 to 45 minims. Slowly absorbed, a more continuous, milder effect obtained. *Seifert*, i. A-41.

GUAIACOL. Guaiacol, in doses sufficient to penetrate the human organism, has no direct effect on the evolution of tuberculous lesions in guinea-pigs, even after repeated applications. Improvement obtained in certain cases, therefore, not due to its specific action nor to reduction of temperature; explained by regulation of heat-curve, which becomes normal after a few applications, enabling organism to successfully combat bacilli. *Courmont and Nicolas*, i. A-41, 42.

Similar conclusions from experiments on rabbits ; good results observed possibly due to oxidation of coagulable toxalbumins. *Bugnion and Berdez*, i. A-42.

Cases in which apparent recovery followed use of guaiacol applications. *Bose, Cérenville*, i. A-42.

Case in which drug acted as an analgesic when applied over painful areas. *Woessure*, i. A-42.

Applications of guaiacol have a more injurious than beneficial action on the organism. In eight cases emaciation increased; thoracic symptoms became aggravated, etc. *De Renzi*, i. A-42.

Internal administration of guaiacol in 200 cases,—5 minims three times a day with arsenic and digitaline. In a few cases dose gradually increased to 15 or 20 drops. Most marked effects for good were improvement in general well-being of patient, gain in appetite and weight, decrease of cough. In a few cases cure obtained. *Sears*, i. A-42.

Guaiacol beneficial in chronic ulceration of the lungs, whether associated with tubercle bacillus or not ; has no specific action on latter bacillus. Best results obtained in patients in whom the destructive process was slow and the symptoms mild. *Curtin*, i. A-43.

Subcutaneous injections of a solution of guaiacol in sterilized oil, 15½ minims every two or three days, according to sensitiveness of patient. A number of cases in which the disease appears to have been arrested. *Le Tanneur*, i. A-43.

Guaiacol carbonate milder in its action than pure guaiacol or creasote, amount absorbed into the blood being small. *Hölscher*, i. A-43.

Good results from this form of guaiacol. *Coley and Torstenssen*, i. A-44.

Milk an excellent excipient for guaiacol for rectal injections. One part of guaiacol to twenty or thirty parts of milk keep indefinitely without coagulating, and can be readily mixed with water. *Turrhet*, i. A-44.

GUAIACOL AND MENTHOL. Injections through the larynx of guaiacol (2 per cent.), menthol (10 per cent.), and olive-oil (88 per cent.), 1 to 1½ fluidrachms rapidly during inspiration, twice or even more frequently at the same sitting. *Colin Campbell*, i. A-44.

Two drachms can be injected through the glottis without any discomfort to the patient. Coughing avoided by passing rapidly the nozzle of syringe through the rima glottidis, then driving the contents into the trachea. *J. K. Fowler*, i. A-44.

Dyspnœa often relieved in a striking manner by intra-laryngeal injections of menthol (20 per cent.) with guaiacol (3 per cent.) dissolved in olive-oil. *Coley*, i. A-44, 45.

Future of antibacillar medication lies in inhalations; spray in the bed-room of the patient, two hours daily, with large atomizer of Lucas-Championnière, bottle of which is two-thirds filled with water, 2 tablespoonfuls of following mixture added each time spray is used: ℞ Guaiacol, 1½ ounces; eucalyptol, 1¼ ounces ; carbolic acid, 1 ounce ; menthol, 5 drachms ; thymol, 2½ drachms ; essence of cloves, 1¼ drachms ; alcohol at 90°, sufficient to make 1 quart. Recovery of a patient in the second stage after eight months of treatment. *Henri Huchard*, i. A-45.

PEPPERMINT. Thirty-four cases treated by peppermint inhalations with creasote internally, according to Carasso. Method is to fasten over the nostrils a piece of linen ten centimetres square and folded once. On this a few drops of essence of peppermint poured, having previously greased the nostrils so as to avoid intra-nasal irritation. Eight or ten deep inspirations with closed mouth every fifteen minutes. Manner of giving creasote unphysiological, but peppermint valuable. Unsatisfactory results from Carasso's treatment in 90 cases. Peppermint seems of use. *De Lancy Rochester*, i. A-46.

While bacillus of tuberculosis may be prevented by menthol from growing in a test-tube, its parasitic existence is not hindered

by even constant inhalation of the strong vapor of peppermint. *E. R. Baldwin*, i. A-46, 47.

ICHTHYOL. One hundred and fifty cases treated with icthyol,—1 part to 2 of water; 20 to 180 drops, dissolved in water, in the course of the day well borne. Of 150 cases, 17 apparently cured, 50 improved. *Scarpa*, i. A-47.

Ichthyol recommended. *Crida*, i. A-47.

Syrup of nascent phenic acid of most benefit in chronic cases with slow emaciation, low temperature, and poor assimilation of food. *Curtin*, i. A-47.

PURIFIED AIR. Thirty-eight cases, 4 of which were cured, 9 greatly improved, 6 remained. Most important therapeutic factors being purified air and equable temperature. *Duncan*, i. A-47.

NUCLEIN. Nuclein and nucleinic acid powerful germicides; germicidal constituent of the serum of blood is nuclein; rabbits and guinea-pigs may be protected against virulent cultures of diplococcus of pneumonia by previous treatment with injections of a solution of yeast-nuclein. 1. In cases of pulmonary tuberculosis with cavities it does no good. 2. In long-standing cases it may retard progress of the disease so long as secondary infection with pyogenic germs does not occur. 3. A temporary cure may be obtained in early cases. *Vaughan*, i. A-48, 49.

Favorable results from nuclein. *M. O. Teigen, W. Wilcox, and others*, i. A-49.

Nuclein of value in incipient stages. *Rosenberry and Garber*, v. A-24.

CINNAMIC ACID. Cinnamic acid made into an emulsion with oil of almonds and yelk of egg, rendered alkaline, and 5 to 12 drops injected into the cephalic vein. Results not so good as those recorded by Landerer, but sufficiently encouraging to merit attention. *Moschcowitz*, i. A-49.

No good results whatever from this treatment; marked depression, with severe pains in the sacrum, head, and chest. *Mader*, i. A-49.

Of forty-five cases all but two showed improvement; weight increased, cough ceased, and bacilli disappeared from expectoration. *Landerer*, i. A-49.

INTRA-PULMONARY INJECTIONS. Intra-pulmonary injections of precipitated beta-naphthol, 6 grains; gum tragacanth, 3 grains; distilled boiled water, 5 fluidrachms; $4\frac{1}{2}$ minims injected with Pravaz syringe. Eventually forms an area of sclerosis. *Fernet*, i. A-49, 50.

Intra-parenchymatous injections without danger in first stage; a solution of naphthol or creasoted oil is to be preferred. Contra-indicated if lesions extensive. *Chandebois*, i. A-50.

TREATMENT OF DYSPNŒA. [Intra-laryngeal injections of menthol, 20 per cent., and guaiacol, 3 per cent., dissolved in olive-oil, using a 1-drachm (4 grammes) syringe, and injecting 20 minims to $\frac{1}{2}$ drachm (1.3 to 2 grammes) at once, repeating after a pause of two or three minutes. Patient to repress cough as much as possible (Coley). Ergot fluid extract, $\frac{1}{2}$ to 1 drachm (2 to 4 grammes) or more, or ergotine, $\frac{1}{2}$ grain to 4 grains (0.03 to 0.26 gramme) or more several times daily (Crocq). ED.]

TREATMENT OF HÆMOPTYSIS. Thrombosis and obliteration of vessels about to ulcerate lead to increase of tension in lesser circulation. The vessels, still permeable, dilate and form aneurisms, which readily yield to the increased blood-pressure, and hæmorrhage results. Blood-pressure then falls and clot forms. Cause of high tension must be sought for and removed. Morphine injections and ergotine most satisfactory for direct effect. *Prassietsky*, i. A-50, 51.

Among 1000 patients at Davos, great majority of hæmorrhages occur on days on which there is low barometric pressure. *Van Ryn*, i. A-51.

Trousseau's method—remedies to induce nausea—advocated in severe and persistent bleeding. *Kober*, i. A-51.

Ipecac, if the other well-known measures fail,—$\frac{1}{2}$ to 1 drachm. *Morain*, i. A-51, 52.

When due to the rupture of aneurisms in tuberculous cavities, large divided doses of opium. *Jay*, i. A-52.

[Application of ice to testicles or labia majora, in addition to usual measures. If necessary, application may be made twice daily or continued five minutes at a time (Daremberg). Filtered crude petroleum in capsules and inhalation of air passed through petroleum (Pellissier). Oxygenated water inhaled in the form of vapor (Wallian). ED.]

TREATMENT OF NIGHT-SWEATS. Chloralose, $\frac{3}{4}$ grain, in a cachet; renewed at the end of half an hour, if needed. *Sacaze*, i. A-52.

Scopolamine. $\frac{1}{130}$ to $\frac{1}{64}$ grain, in the evening. *Kamensky and Netchaëff*, v. A-137.

Compress, completely covering and surrounding thorax, soaked in water at 53.6° to 59° F., quickly applied over the chest, taking care that apex is well covered. Flannel bandage, somewhat larger than the compress, now wrapped around the chest; remains all night. In the morning dry friction. *Knopf*, i. A-52.

In hectic fever with night-sweats, cold sponging night and morning. *Winternitz*, i. A-52.

[Ergotine, 2 grains (0.13 gramme) three or four times daily (Da Costa). Agaricine, in pill form, $\frac{1}{12}$ grain (0.005 gramme) at bed-time or late in the afternoon, and re-

TUBERCULOSIS, PULMONARY (continued).

peated in four or five hours (Conkling). Guaiacol and iodoform in sterilized olive-oil, hypodermically (Picot). Chloralamid, 30 to 35 grains (2 or 2.3 grammes) at bed-time (Conkling). Hydrastis Canadensis, fluid extract, 20 to 30 drops during the night; repeated, if necessary (Olszenki). ED.]

CLIMATIC TREATMENT. Only requisite is that of admitting of patient's being as much in the open air and sunlight as possible. Whenever sufferers can spend all day out-of-doors, and, when in-doors, can still live in a pure atmosphere, they will do well. *S. West*, i. A-53.

The anæmic and phlegmatic best influenced in Colorado. Larger margin of sound tissue in lungs demanded than in changing to a less extreme climate; a certain evidence of vital resiliency is imperative. *Solly*, v. A-185.

Cases unfavorably affected by high altitudes are those in which extent of lung involvement is so great that rare atmosphere does not supply enough oxygen. Embarrassed heart-action a contra-indication. *Munn*, v. A-185.

Cases especially unfavorably affected by Colorado climate are those in later stages. Dyspnœa increased, ability to take exercise diminished, and heart's action increased. *Waxham*, v. A-186.

All things considered, Southern California seems to present more of essentials of health for a larger proportion of invalids than any other section visited. A land of many and varied climates, however. *Wm. A. Berry*, v. A-186.

Promiscuous manner in which physicians of the East send patients to Los Angeles regrettable. *W. H. Dukeman*, v. A-186, 187.

Best plan of all is to construct a tent-cottage. Cheaper than hotel living and infinitely better. *Wm. Tisdale*, v. A-187.

Ideal resort on the western coast of Florida, Tarpon Springs. Unusual proportion of benefited cases. *Medical Bulletin*, v. A-187.

The Concho country, between Colorado River and Rio Grande, most desirable part of Texas as a resort for tuberculous patients. *T. W. Conerly*, v. A-187, 188.

Southern New Mexico more nearly fills the requirements for the treatment of pulmonary diseases than any other region. *Swope*, v. A-188.

Sea-side as good as mountains in tuberculosis, both being efficacious through common element,—pure air. *Lalesque*, v. A-190.

As shown by Koch, sunlight either abolishes or greatly attenuates the virulence of the bacillus. Experiments showing that after ten or fifteen hours' exposure, bacillus caused only local tuberculosis, while after twenty-four to thirty hours it caused no symptoms. Sunlight should be allowed to enter freely into the houses of tuberculous patients. *Migneco*, i. A-53.

PHYSICAL EXERCISE. Method of treatment and prophylaxis by lung-gymnastics too much neglected. Especially valuable when vital capacity is low and chest-expansion limited. *Otis*, i. A-53.

Several cases in which physical exercise, in connection with appropriate medicinal, dietetic, and hygienic treatment, gave excellent results. *Butler*, i. A-53.

Systematic muscular exercise a potent adjuvant. *McGillicuddy*, i. A-53.

Forcible apical expansion in incipient cases. Method found most useful in holding of the breath for a moment after full inspiration by closing the glottis. Effect increased if during the holding of the breath the lower chest is compressed with the hands. *Weaver*, i. A-53, 54.

NUTRITION. Error of attributing the greatest value to albuminoids. A mixed diet is essential, largely composed of foods rich in fat, furnishing caloric to the organism; fresh butter the one most acceptable to the patients. *Blumenfeld*, i. A-54.

Glycerin extract of liver mixed with cod-liver-oil after each meal in cases of advanced phthisis to improve nutrition. *John F. Russell*, i. A-54, 55.

DISINFECTION. Disinfection cannot be obtained by means of ordinary fumigation methods. Application of a solution of chlorinated lime to the walls the most satisfactory. Light the most important natural disinfecting agent. *Delépine and Ransome*, i. A-55.

Wood-vinegar efficacious in disinfecting the sputum of tuberculous patients; more powerful than a 5-per-cent. carbolic-acid solution. *Goriansky*, i. A-55.

Two-per-cent. solution of parachlorphenol an effective disinfectant. *Spengler*, i. A-55.

SURGICAL TREATMENT. Case in which incision in second intercostal space practiced to open small cavity with thermo-cautery. Eleven days later large adjacent cavity opened spontaneously into the wound; recovery complete in forty days. *Fabricans*, iii. B-20.

Surgical treatment should be applied when pulmonary excavation constitutes essential lesion, when symptoms of putrid absorption predominate, and when patient exhausted by abundant expectoration. *Réclus*, iii. B-20, 21.

Pneumonectomy for tuberculosis condemned. Can only be practiced with any chances of success in cases amenable to medical treatment. *Réclus*, iii. B-21.

Chief obstacles to reparation of cavity are pulmonary sclerosis and chronic bronchitis with dilatation. Cavity cannot close up ex-

cept by causing great depression of thoracic wall. Total resection by Schede's method must be employed. *Walther*, iii. B-21.

Pneumonectomy in case presenting signs of tuberculosis localized in apex of right lung. Tubercle bacilli in sputum and excised tissue. *Tuffier*, iii. B-22, 23.

[This case was duly noted in this department of the ANNUAL when it was first published, and there was extensive reference to it in the medical journals of this and other countries; so that it affords a most interesting record now to present the history of the case after the lapse of four years since the cure by this operation. The most interesting feature of this excision of the diseased apex of the lung is that the patient has not suffered from any pulmonary disturbance since and that there is no evidence of return of the disease at the date of the report. According to the table of Trzebicki the operations of pneumonectomy are limited to five cases, presumably those of Anthony, Tuffier, Tilmanns, Lawson, and Jennings, but there are doubtless others of which no record is given. For instance, a case of pulmonary gangrene is reported by Delagénière, in which resection of lung gave a favorable result. He maintains that the operation for pulmonary gangrene has failed because surgeons have been content to drain the gangrenous focus instead of extirpating it as completely as possible. J. MCFADDEN GASTON, Assoc. Ed., iii. B-22.]

Inoculation of the pleura fatal; in operations on the lung it should always be drained and disinfected by resecting sixth to ninth ribs and draining costo-diaphragmatic *cul-de-sac*. *Delagénière*, iii. B-23.

Usefulness of exploring pleural cavity to recognize seat of pulmonary lesion. Case in which signs appeared localized to base of right lung. Incision and resection of eighth and ninth ribs. Normal condition. First incision closed and another necessary corresponding to fourth rib, finding cavity filled with pus. *Bazy*, iii. B-23.

PULMONARY GANGRENE. There is apparently no primary gangrene of the lung. *Babès*, i. A-82, 83.

TREATMENT. Parenchymatous injections of antiseptic fluids. Three-per-cent. solution of carbolic acid into intercostal space where physical signs most marked, 15½ to 31 minims of solution injected. *Rokitansky*, i. A-83.

Inhalation of vapor of guaiacol to overcome terrible fœtor, using ordinary oxygen-inhaler, placing guaiacol in washing-flask. Atmospheric air may be used instead of oxygen, but latter better. *Richardière*, i. A-83.

Pneumonotomy in a case of pulmonary gangrene. Recovery. *Krause*, iii. B-23.

Pneumonotomy indicated in cases in which cavity, though distinctly circumscribed, is large, and when toxæmia through putrid contents. *Réclus*, iii. B-25.

TUMORS.

MALIGNANT. Among 934 cases of carcinoma of the breast reported, 125 gave a history of traumatic origin. Of 316 cases of sarcoma, 216 in the male, 97 in the female; difference due to the fact that the male is more exposed to injury. Among 190 cases 135 developed within a month after injury, 33 inside of a year, and 22 after a year. *Löwenthal*, iii. L-1, 2.

Traumatism and irritation a definite cause of all new growths. *B. B. Davis*, iii. L-2.

Tumors more numerous on that part of the body which most shows lack of development; hence tumors more likely to occur in such undeveloped parts, if not themselves directly the result of some fault of development. *Féré*, ii. L-2.

CANCER.

PATHOGENESIS. Two points stand out in bold relief from study of pathogenesis: 1. Cancer presents a course and clinical aspect analogous to those of formations of parasitic origin. 2. Within cancerous tissues there occur bodies which closely resemble the different life-stages of protozoa, of sporozoa, and of gregarinidæ. *Allen J. Smith*, iii. L-2, 3.

Conclusion highly probable that disease is caused by a micro-organism, a fungus, and not, as supposed, a bacterium, coccidium, or protozoön. *Braithwaite*, iii. L-3, 4.

[An editorial writer considers the fungi which Braithwaite has found as probably belonging to the class of kyphomycetes. The spores of such fungi abound in atmospheric dust, and the readiness with which they germinate is notorious. He recalls that similar fungi have been found in the lungs; they were quite innocuous or merely excited some local inflammation. E. LAPLACE, Assoc. Ed., iii. L-4.]

Yeast-fungus,—species of saccharomyces obtained from cultures of a cancer of the uterus; found several times in cancerous and sarcomatous tumors. *Kahane*, iii. L-4.

Pathologico-anatomical alterations produced by this fungus of less importance than its complete morphological correspondence with the various bodies described as coccidia peculiar to the malignant tumors of man. *Sanfelice*, iii. L-4.

Fungus appears to prevent the development of bacteria; its presence in a tissue should not always be regarded as unfavorable. *Herz*, iii. L-4.

Blastomycetes injected into the rabbit, guinea-pig, chicken, and dog gave rise to non-inflammatory new formations resembling epithelial or endothelial growths. *Maffucci and Sirleo*, iii. L-4, 5.

TUMORS (continued).

[Shattock and Ballance have shown that carcinomatous and sarcomatous tumors from the human subject cannot be transplanted in the lower animals. E. LAPLACE, Assoc. Ed., iii. L-5.]

Study of effects of intra-venous injections of the pulp of epithelial cancer. Non-ulcerous sarcomata or carcinomata did not appear to be toxic; ulcerated mucous-membrane epithelioma proved extremely poisonous. *Richet*, iii. L-5.

When cancer attributable to a fungus, a bacillus, or a protozoön, the reaction of the affected tissue is in all cases different from that met with in pathological conditions generally. *Eifer*, iii. L-5.

What has been described in recent years as parasites of cancer are in reality cellular degenerations. As far as the etiology is concerned, we are, as in the past, totally in ignorance. *Maurice Cazin*, iii. L-6.

Every variety of malignant new growth exhibits the phenomenon of extremely copious leucocytic immigration. Leucocytes steadily and progressively increase in number throughout, but are always restricted to the normal tissues. In cancer leucocytes do not check, but, on the contrary, aid the progress of the infiltration by macerating the inhibiting barriers of fibrous tissue. *Herbert Snow*, iii. L-6.

Personal demonstration long ago of the reticular structure of the blood-corpuscle found in the cancerous cell. This retiform cell is endowed with movement as other protoplasmic cell. This net-work of the corpuscle is an excellent indicator of the vitality of the body. *Heitzmann*, iii. L-7.

In patients with malignant growths not treated there is always diminution of hæmoglobin, their quantity increasing after extirpation of the tumor. Considerable variability of form and numbers of leucocytes. *Chudovsky*, iii. L-7.

In warmed (100.4° F.) serum examined added to an equal quantity of juice extracted from a cancer, amœboid movements will be found to be at least twice as extensive and rapid as in warmed serum alone. *Mayet*, iii. L-7.

Assertions of Rommelaere, that hypoazoturia and hypophosphaturia were constant in cancerous patients not supported. Amount of urea diminished only when patients could no longer take sufficient nourishment. *Duplay, Cazin and Savoire*, iii. L-7, 8.

Estimate of toxicity of urine of seventeen cancerous patients. Amount of urea invariably less; toxicity of urine, which did not exceed 0.45 in any other disease, reached 0.6, 0.8, 0.9 in cancerous patients. *Gaudier, Hilt*, i. E-77.

Ptomaine extracted from the urine of cancerous patients,—a white substance, crystallizing in needles. It dissolves in water with an alkaline reaction, gives a brown reaction with Wessler's reagent, is very poisonous, and, injected into the veins, leads to fever and death in three hours. Not present in normal urine. *Griffith*, i. E-78.

Carcinoma due to a primary new growth of connective tissue which encroaches upon epithelium of a part and separates portions of it from their normal relations. *Ribbert*, iii. L-8.

Essential feature of malignancy of carcinoma a persistence of undue proliferative activity. Genesis of cancer and other neoplasms a phenomenon of the same order as discontinuous growth in general. *Roger Williams*, iii. L-8.

Sequence of cancer cases from the same neighborhood and other examples to prove contagiousness of tumor. *T. Law Webb*, iii. L-8.

"Cancer-houses." Soil and situation have much to do with the mortality from cancer. Cancer is most prevalent along courses of rivers which seasonably flood their banks. *Haviland*, iii. L-9.

Though practicing for twenty-five years in a district overlying collieries, a single case of cancerous disease in a collier who was working in the pits never met with. *T. Law Webb*, iii. L-9.

It may be affirmed that colliers are relatively less liable to cancer than almost any other class. In London mortality highest in parts where the well-to-do most abound. *W. R. Williams*, iii. L-9, 10.

Facts demonstrating contagiousness of cancer. Three series of healthy white mice in pairs in new cages, one series given as companions a large number of bedbugs taken from infected cages. Some months later all animals in the cages containing bedbugs had become cancerous, while those in other cages had remained healthy. *H. Morau*, iii. L-10.

All acquired lesions modify the general physiology of nutrition; this modification must act upon the nutrition of germinative cells. Hence, cancer is hereditary; this heredity is essential, and not purely a predisposition. *Critzman*, iii. L-10.

Predisposition to cancer as closely allied to tuberculous predisposition—a diluted form. *W. Roger Williams*, iii. L-10, 11.

SARCOMA.

PATHOLOGY. Certain cases of sarcoma are due to syphilis and can be cured by specific treatment. *Von Esmarch*, iii. L-12.

Endeavors to explain transformation of relatively benign tuberculous lymphomata into malign growths by an increased virulence of pathogenic bacillus as yet unknown. *G. Ricker*, iii. L-12 13.

Encephaloid sarcomata and fibromata belong to the same family, only a difference in evolution. *Quénu*, iii. L-13, 14.

The word sarcoma frequently used in a vague sense, in particular "round-celled sarcoma." No tumor solely composed of round cells originates in the connective tissues; every sarcoma, properly so called, contains abundant spindle-celled tissue or spindle cells ranged in bands. None can be held genuine without this pathognomonic sign. *H. Snow*, iii. L-14.

Denial that connective tissue is always present in round-celled sarcomata. *Bowlby*, iii. L-14.

The classification of sarcomata only a trial-grouping. Under a strong lens the juice of freshly-extirpated sarcomata shows the presence of small bodies, highly refractive and extremely mobile, remaining resistant to alcohol. Several microbes are probably capable of producing sarcomatous growths. *Delbet*, iii. L-14, 15.

Free intra-cellular and spore-bearing forms of sporozoa found in numerous cases of sarcoma. *Clarke*, iii. L-15.

Living sporozoa found in sarcomata morphologically quite different from those in the various forms of carcinoma. *Vedeler*, iii. L-15.

Amylaceous bodies observed in a case of endosteal sarcoma of the sternum. *Hildebrand*, iii. L-15.

TREATMENT. Modification in method of using erysipelas toxins, first subjecting animals to action of toxins for a time, then employing the blood-serum of these animals instead of the toxins. *Coley*, iii. L-15, 16.

[Coley's method was tried in almost every civilized country, but it is reasonable to suppose that nowhere was it carried out with the same care, the same attention to details, as by the author himself. This may account for the varying results reported. Reports given below include only those furnishing clear data. E. LAPLACE, Assoc. Ed., iii. L-16.]

Coley's serum in thirteen cases of epithelial carcinoma and four cases of sarcoma. Improvement in one case of sarcoma, lasting a long time. *Friedrich*, iii. L-16.

Coley's serum in case of sarcoma of abdominal cavity; after three months hardly any discharge, abdomen reduced to normal. *Herman Mynter*, iii. L-16.

Coley's serum in 4 cases of malignant disease,—3 carcinomata and 1 sarcoma. In two weeks size of sarcoma had remarkably diminished, remained stationary for four weeks, then began to increase and was finally removed. In very advanced, inoperable cases, especially of cancer, treatment would seem useless. *Dewitt*, iii. L-16, 17.

Coley's serum in a number of cases where cures have been claimed, diagnosis not established by microscopical examinations. Tried in nine cases, not only failed to obtain a cure, but in some instances injections appeared to aggravate local and general condition. *Nicholas Senn*, iii. L-17.

Coley's serum in 84 cases treated during the past four years. All malignant: 43 sarcomata, 27 carcinomata. Eleven sarcomata and 2 carcinomata cured; 3 cures of two years' standing. *W. B. Coley*, iii. L-17.

Some of Coley's cases seen before treatment and again one year after treatment. In no single instance was there any evidence of a return of the disease. *Sayre*, iii. L-17.

Coley's serum in twelve cases, but no improvement shown. *Fenger*, iii. L-17.

Coley's serum in a case of recurrent sarcoma of tonsil, temporary benefit obtained. *Chamberlin*, iii. L-17.

Coley's serum in 3 cases,—1 cancer, 1 spindle-celled sarcoma, and 1 of recurrent osteosarcoma. No good results obtained. *J. B. Roberts*, iii. L-17, 18.

No benefit noted from use of either cancroin or erysipelas toxins for carcinoma. But after injections of toxins of erysipelas and of prodigiosus in sarcoma results remarkable in hands of Coley. In one case sent him complete disappearance of the tumor. *M. H. Richardson*, iii. L-18.

Removal of a sarcoma from region of sacrum; recurrence. Under treatment by erysipelas toxin sarcoma disappeared; but, in spite of this patient speedily succumbed to a second recurrence. Other cases in which serum tried, but smallness of dose employed may have been cause of failure. Coley used a dose two or three times as large. *Koch*. iii. L-18.

Coley's serum in 3 cases,—1 of sarcoma at death's door, 1 of carcinoma. Both temporarily improved. Another sarcoma temporarily improved. *W. M. Donald*, iii. L-18.

Coley's serum in 2 cases,—1 a sarcoma of parotid, other an advanced case of carcinoma of upper jaw; softening of tumors and material improvement. *Czerny*, iii. L-18.

Coley's serum in two cases of sarcoma; results in both negative. *Campanini*, iii. L-18, 19.

Coley's serum in three unfavorable cases in sarcoma. *Schmittle*, iii. L-19.

Coley's serum in two cases of sarcoma. General reactions very severe, reminding one of marked reactions which occurred during tuberculin treatment. *C. A. Morton*, iii. L-19.

Review of sixty cases establishes beyond doubt the fact that streptococcic toxin, when injected into any part of the body of an individual affected with a malignant growth, will excite in this growth a rapid degeneration, which may extend to necrosis

TUMORS (continued).

and ultimately lead, in most favorable cases, to radical cure. *Répin*, iii. L-19.

Sarcomata especially may sometimes be cured by Coley's serum; development of carcinoma sometimes retarded. Treatment only to be recommended in inoperable cases; method should always be tried. *Czerny*, iii. L-19.

Variable amount of success obtained in sarcoma—whether by erysipelas cultures, toxins, serum—explainable by supposition that under the head of sarcoma many different pathological conditions are grouped. *Delbet*, iii. L-19, 20.

Serum obtained from donkey inoculated with solution of crushed osteosarcoma, producing no reactionary symptoms. Two cases; extraordinary success in one. *Richet and Héricourt*, iii. L-20.

Richet and Héricourt's serum, in case of sarcoma which had recurred in the same spot, reduced to one-third of its original size. *Terrier*, iii. L-20.

Study of effects in a much larger number of cases, together with those communicated to them by Réclus, Pinard, Terrier, Faure, Hallopeau, Tuffier, and others, amounting to about fifty cases. Conclusions: 1. Marked diminution of pain. 2. Cancerous ulcers become clean and assume the aspect of granulating sores. 3. Marked shrinking takes place in neighboring tissues, related glands, and growth itself. *Richet and Héricourt*, iii. L-20.

Richet and Héricourt's serum seemed not to modify cancerous element itself, but to diminish tumefaction, hæmorrhage, and pain, and in some cases to markedly improve general health. *Féré*, iii. L-20.

Richet and Héricourt's serum (1) produces rapid amelioration (6 cases in 7) as regards pain, congestion, and suppuration; (2) in majority of cases amelioration persists. Method not curative, but constitutes a treatment superior to any employed. *Boureau*, iii. L-21.

Richet and Héricourt's serum in two cases; unfavorable results. *Bompard*, iii. L-21.

By using injections before and after operations for cancer recurrence may be delayed. *Boinet*, iii. L-21.

Experiments and clinical research with serum derived from sheep infected with erysipelas, drawn with aseptic precautions. Lasting results said to have been obtained in cancer. *Emmerich and Scholl*, iii. L-21, 22.

Emmerich and Scholl's statistics not exact. Three failures omitted. *Angerer*, iii. L-22.

Emmerich and Scholl's serum tried in six cases of undoubted cancer without observing the slightest therapeutic effect. Danger of these injections urged. *Bruns*, iii. L-22.

Emmerich and Scholl's serum in two cases. In first, tumor (epithelioma) greatly modified, appearing to undergo a semifluid, caseous transformation. In second case (sarcoma), patient developed genuine erysipelas, which he communicated to his wife. Effect on tumor remarkable. *Freymuth*, iii. L-22.

Emmerich and Scholl's serum employed for tumor of the right breast; microscopical examination confirmed by a colleague. Growth gradually diminished and softened; at time of report had almost disappeared. *Schuler*, iii. L-22, 23.

Sero-therapy logically applicable only to microbic affections. Cancer does not belong to this group in any of its characters. Serum injections have the same value as those known before the modifying action of chemical substances,—oil of phosphorus, picric acid, pyoktanin, etc.,—which, when injected, cause a local aseptic necrosis which attracts leucocytes, part absorbed, and tumor undergoes temporary diminution in size. *Fabre-Doumergue*, iii. L-23.

Action of three different strengths of serum from sheep inoculated with erysipelas streptococci in 15 cases of malignant disease,—13 carcinoma, 1 sarcoma, and 1 malignant lymphoma. Action purely local, tumors undergoing alteration only in immediate neighborhood of injections. Bruns's view, that serum method has not advanced the non-operative treatment of malignant disease, strongly indorsed. *Kopfstein*, iii. L-23, 24.

Practical experiments either with Coley's method or Richet and Héricourt's serum should be made only in inoperable cases. By pursuing these attempts, modifying methods and procedures, it is possible that a remedy may some day be found. *Berger*, iii. L-24.

Traumatism during examination of a tumor to be operated on should be carefully avoided. Bad effects of violence upon growth of malignant tumors known; yet majority of surgeons do not hesitate to palpate and handle them roughly. To prevent reproduction, mixture of 30 parts of absolute alcohol to 70 parts of water; injections twice a week round tumor. *O. Hasse*, iii. L-24, 25.

Alcohol as a curative measure, injecting it into various tumors. Ten to 20 minims in one side of tumor, then as much in another place, and continue till every part touched with alcohol. *J. W. Young*, iii. L-25.

Saturated solution of citric acid subcutaneously introduced at any point near the periphery seemed to possess elective affinity for diseased structures. Area of induration measurably reduced, instant relief from smarting and tension. *C. M. Fenn*, iii. L-25.

Leaves of *Phytolacca decandra* for destroying epithelioma. Expressed juice allowed to evaporate to a thick, pasty consistency, spread on a piece of silk, and applied to growth. Removed and part washed twice daily; causes severe pain. *Goodman*, iii. L-25.

Methyl-violet employed in powder, solution of 1 per cent., or in collodion 1 to 30; last method rather painful, but less costly, of more easy application, and of greater activity. One application daily. *Von Mosetig-Moorhof*, iii. L-26.

[These remedies are only mentioned to satisfy needs of practitioners who may encounter unsurmountable resistance against operative procedures or to serve as last resorts in inoperable cases. The views of the prominent surgeons who have written on cancer during the year may be said to be represented by the conclusion that as soon as diagnosis is assured we should intervene by the bloody method, always making a systematic and carefully-detailed toilet of the ganglion chain, even if it is healthy in appearance. Cancer and other malignant growths on the increase. J. D. Bryant, of New York, gave statistics showing that in the United States mortality from cancer in 1850 was 9 for 100,000 living; in 1890, 33.5 for 100,000 living. E. Laplace, Assoc. Ed., iii. L-26, 27.]

Early excision of certain sarcomata and carcinomata very frequently modifies favorably their prognosis, the period of immunity from recurrence of the disease being prolonged sometimes indefinitely. As soon and as often as a tumor recurs it should be excised. None of medicines proposed as specifics have ever been of any service. *J. W. S. Gouley*, iii. L-27, 28.

Of thirty-eight cases of cancer in which subsequent histories known, seventeen permanent recoveries. Importance of early removal of tumors, also their presence liable to excite development of malignant growths. *F. S. Dennis*, iii. L-28.

Arsenious acid, in the form of Marsden's paste, preferred to treatment by the knife in extensive cases; scraping of malignant process, then paste applied. *John A. Wyeth*, iv. A-18.

Case of cutaneous epithelioma in parotid region cured by methyl-blue and chromic acid; Darier's method. *Diana*, iv. A-19.

One of the best remedies on many accounts pyrogallol, especially in small superficial epitheliomata commonly seen upon the face. *M. B. Hartzell*, iv. A-19.

SEMIMALIGNANT AND BENIGN.

ANGIOMA. Common trait of all these tumors is their infiltration with small, rounded cells, which brings them near to molluscum and non-malignant cutaneous sarcoma; term of "angiosarcoma" consequently the only one which is exact from an histological stand-point. *A. Pilliet*, iv. A-9.

CYSTS.

DERMOID CYSTS. Not all of the same nature, their pathogenesis not always the same. Probable that simple dermoid produced by mechanism of inclosure. Cysts situated in region of the jaws, sacro-coccygeal, perineal, or scrotal region are due to diplogenesis. *Le Dentu and Pierre Delbet*, iii. L-31, 32.

Cervical dermoid the size of a Tangerine orange, on the neck immediately above the sternum, contained putty-like material. Site very unusual. *Bland Sutton*, iii. L-32.

A brain and a rudimentary eye found in dermoid tumor expelled by the rectum. Presence of ocular formations in dermoids quite exceptional. *Van Duyse*, iii. L-32.

EPIDERMOID CYSTS. Variously called dermal, epidermal, implantation, and traumatic epithelial cyst. Eighteen reported cases. *F. M. Briggs*, iii. L-31.

Twenty-nine such cases have been recorded previous to 1894. *Garré*, iii. L-31.

Careful study of structure and history shows that it has nothing in common with sebaceous cyst. Term "implantation cyst" is a useful one. *J. Bland Sutton*, iii. L-31.

Traumatism explains the production of these cysts; term "implantation cyst" used by Bland Sutton an admirable one. *Thelwall Thomas*, iii. L-31.

HYDATID. Multiple echinococci of the peritoneum are primary and due to the simultaneous penetration of a number of embryos. Best method of curing them is by extra-peritoneal intervention, juxtapubic laparotomy, or lumbo-sacral resection. *Sklifossovski*, iii. L-32.

Intervention in two stages preferable in order to avoid dissemination of the scolices throughout the peritoneum. *Langenbuch and Tillmans*, iii. L-32.

Five cases of hydatid cysts of the muscles, illustrating errors of diagnosis to which such growths may give rise. *Reboul*, iii. L-32, 33.

Hydatid cyst the size of a duck's egg removed from cavity of extracted molars. *G. Sprott*, iii. L-33.

SEBACEOUS. Sebaceous cyst of the nape of the neck. Situation a rare one. *David*, iii. L-30.

Twenty-two sebaceous cysts removed without using suture or ligature. Union by first intention. *Kerbirious*, iii. L-30.

KELOID. Case of keloid due to burning by lightning. *C. F. Nersman*, iv. A-34.

Negroes especially liable to keloid. *T. F. Binnie*, iv. A-34.

Thyroid extract, tablets each containing 5 grains, daily. *J. W. White*, v. A-18.

LIPOMA. Two lipomata or pseudo-

TUMORS (continued).
lipomata of the thigh in a woman affected with tabetic arthropathy of the knee. Argument in favor of the theory attributing pseudolipoma to a trophic disturbance of neuropathic origin. *A. Mathieu*, iii. L-28.

Case of arborescent lipoma, synovial cavity filled with arborescent vegetations. *Kouzmine*, iii. L-28, 29.

Rare case of lipoma of the hypothenar eminence. Not more than six cases of lipoma of the fingers and twelve of the palmar region on record. *De Bersaques*, iii. L-29.

Diffuse lipoma of the hand and fingers which might be classified as a case of macrodactyly. *D'Arcy Power*, iii. L-29.

Removal of abdominal lipoma weighing 37½ pounds. *Lundin*, iii. L-29.

Removal of large lipoma that had undergone sarcomatous degeneration. *Frarier*, iii. L-29.

MYXOMA. Form of contagious and inoculable myxoma, produced apparently by the proliferation of a micro-organism resembling yeast-fungus. *F. Curtis*, iii. L-29, 30.

TRICHOPHYTON TONSURANS.
The ring-worm organism produces a proteolytic enzyme, which liquefies gelatin very rapidly, or is capable of acting even when greatly diluted, and is very stable; acts most rapidly and energetically at or near blood-heat. *Allan Macfadyan*, iv. A-51, 52.

Case of originated trichophytic folliculitis located upon the cheek. *Tenneson*, iv. A-52.

Applications of iodine, made with a hard brush and very vigorously applied, should always be tried before resorting to the curette. *Besnier*, iv. A-52.

Case in a butcher suffering from an extensive dermatomycosis of the neck and face. Invasion of the macroscopical form of trichophyton described by Sabouraud; no doubt that the disease was communicated from a calf. *H. Prip*, iv. A-53.

Circinate ring-worm in which two separate rings were presented to view, one being within the other. *J. Abbott Cantrell*, iv. A-53.

Case of palpebral trichophytosis. *Dubreuilh*, iv. A-53.

TYPHLITIS. See APPENDICITIS.

TYPHOID FEVER.
PATHOLOGY. Mesenteric glands and spleen of a considerable number of persons dying from typhoid fever between twelfth and twenty-fifth day never failed to show the specific bacillus microscopically or by cultures. Distinctly more cylindrical than the bacillus coli; average length twice or three times as great. Motility decidedly greater, each surrounded by numerous flagella; grows less quickly than bacillus coli on surface and in depths of gelatin, etc. *G. E. Klein*, i. G-3, 4.

Both anatomical lesions and symptoms are the same, whether resulting from infection by the microbe or intoxication by its products. Eberth's bacillus fabricates a toxin which acts on nervous system; acts peculiarly on mucous membranes, especially of intestine. In human typhoid Eberth's bacillus not found in intestinal contents (1) because typhoid fever is an infection of lymphatic system only; (2) because directly the poison begins to act on intestinal walls the bacillus coli becomes pathogenic, and increases enormously and assimilates all other forms. Bacillus coli constitutes first cause of secondary injections. Animals vaccinated against Eberth's bacillus are also vaccinated against bacillus coli, which tends to disappear from the intestine. *Sanarelli*, i. G-4, 5.

Cultures from dejecta of 12 cases of typical typhoid fever. Of 600 colonies bacillus of Eberth found in only 10. In 8 patients bacillus never present in fæcal discharges; bacillus coli nearly always present. *Wathelet*, i. G-5.

Histological appearances of liver in seven cases: Diminutive nodules observed in all specimens, lymphoid and necrotic, invaded to a greater or lesser extent by lymphoid cells. Nodules made up of masses of unstained granular protoplasm. Observations sustain Osler's view that no definite relation exists between the typhoid bacillus and these nodules. Besides nodules, areas of capillary dilatation, with only the nuclei remaining in the hepatic cells. *J. A. Amyot*, i. G-5.

Subcutaneous injection of the typhoid bacillus does not cause suppuration in the healthy dog, but, in anæmic animals and where there is a local lesion, suppuration easily produced. When a local lesion is produced beforehand, and organisms are then injected into the peritoneum, they may settle in the place of diminished resistance and produce an abscess. Case of post-typhoid suppuration in the parotid in which only typhoid bacilli could be found. *Dmochowski and Janowski*, i. G-6.

Three varieties of chemical substances extracted from the spleen after death during the third week,—albumoses, alkaloids, and fatty bodies. Injection of albuminous extract into lower animals causes elevation of temperature, anorexia, and emaciation. Administration of alkaloidal and fatty extracts are unattended by pathological results. *Fenwick and Bokenham*, i. G-7.

Case in which a miscarriage took place in the fifth month of pregnancy and during

fourth week of an attack of typhoid fever. Characteristic lesions of typhoid not found in the fœtus because the functions of its organs had not yet been established. *H. W. Freund and E. Levy*, i. G-7.

CONTAMINATION. 1. A freshly-isolated stock of the bacilli introduced into water possesses distinctly greater vitality than one that has been under cultivation for some months. 2. The typhoid-fever bacillus, when introduced with proper precautions into sterilized water, does not multiply, but may, under certain conditions, maintain its vitality for upward of ninety-three days. 3. Colon bacillus, on the contrary, under similar conditions, undergoes rapid multiplication, and may remain alive for upward of two hundred and sixty-two days. *E. O. Jordon*, i. G-7, 8.

Addition of nitrates to water materially increases its power to support the typhoid bacillus in a virulent condition. *Klein*, i. G-8.

Epidemic of typhoid fever in Stamford due to infected milk. Milkman's barns surrounded on all sides by dwellings. Water from two wells and other water-supply found contaminated. *Prudden*, i. G-8.

Three epidemics of typhoid fever in regiments of French soldiers; origin clearly shown to be independent of water-supply. *J. Poché*, i. G-8.

Two cases of typhoid fever in which the disease was contracted by the use of a syringe in giving enemata. *Anderson*, i. G-8, 9.

Infection from ingestion of oysters. Typhoid bacillus grows very readily on vegetables, and these washed or watered with contaminated water might contain germs of fever. *Dreschfeld*, i. G-9.

Fatigue an important factor in the evolution of typhoid fever, especially so in hot climates. *Constans*, i. G-9.

Typhoid fever in India especially marked when filth scattered in fields and collected in heaps near and in villages and towns, when lanes saturated with liquid animal excreta are freely exposed to the hot rays of the sun. Next active in the dry part of winter, then in the rainy season, and, lastly, in the spring. *Ram Kishen*, i. G-9.

Nine cases of typhoid fever in which disease communicated by oysters. Typhoid not prevalent, hygienic surroundings perfect. In all cases oysters partaken of freely by the patients. *Broadbent*, i. G-9.

While typhoid fever is probably not contagious in the vast majority of cases, or but feebly so, the most malignant forms are as actively contagious as scarlet fever or diphtheria. *P. S. Wise*, i. G-9, 10.

[Existing evidence conclusively proves that typhoid fever is *not* transmitted through the air, but by *direct contact*. JUDSON DALAND, Assoc. Ed., i. G-10.]

SYMPTOMATOLOGY.

HÆMORRHAGE. Case in which hæmorrhage from the ears was a conspicuous manifestation. *Molinié and Dannié*, i. G-10.

Family in which there were 34 cases of typhoid fever. Intestinal hæmorrhage in 18, or 53 per cent.; cause of death in 12 cases, or 33 per cent. *W. T. Pate*, i. G-10.

When intestinal hæmorrhage appears at the beginning of typhoid fever the prognosis is always grave; when it occurs during the typhoid state and is moderate, it does not compromise the possibility of recovery, even sometimes exercises restraining effect upon nervous symptoms. When it occurs late in the disease, danger of perforation. *Achard*, i. G-10.

[It is well known that intestinal hæmorrhage occurring in the beginning of typhoid fever does not always make the prognosis grave. Many cases recover after running an uneventful course. JUDSON DALAND, Assoc. Ed., i. G-10.]

PETECHIÆ. Roseolar may be replaced by a papular eruption. Twelve instances, in two of which bacillus of typhoid fever found in infiltrated cutaneous follicles. In doubtful cases it may sometimes be possible to base the diagnosis on a bacteriological examination of cutaneous eruption. *G. Singer*, i. G-10, 11.

[The writer has observed in the same hospital a case of typhoid fever in which the roseola was replaced by numerous small petechiæ. The case terminated fatally in forty-eight hours. JUDSON DALAND, Assoc. Ed., i. G-11.]

Blue spots found in 8 out of 915 cases. *A. V. M. Anderson*, i. G-11.

URINE. Bacteriological examination of the urine in a case of suspected typhoid fever may aid in the diagnosis, though the probability of establishing it by this alone is small. No relation between numbers of bacteria and amount of albumin. *Baart de la Faille*, i. G-11.

Albumin appearing at the end of the first or beginning of the second week in no way influences the progress of the fever. When, however, it appears at third or fourth week, it shows that the kidney is affected and that uræmia is to be feared. Mortality, where late albuminuria appeared, 66 per cent. *Louis Lecocq*, i. G-12.

Observations of Mygge, who, in 72 typhoid-fever patients, found albumin present in 52. In half of these it was due to nephritis; in other half to pyelitis or cystitis. Case which began as a pyelitis; it being only on the eighth day that the diagnosis of typhoid fever could be made. *Roth*, i. G-12.

Examination of 243 specimens of Ehrlich's

TYPHOID FEVER (continued).
diazo-reaction found invariably in typhoid fever. *Wm. J. M. Ettles*, i. G-12, 13.

Color reaction not reliable. Positive evidence is the blue-green precipitate. Complete reaction present in typhoid fever, but not in most other febrile states. A typhoid case should not be considered as cured until urine free from indican. *S. Herbert Perry*, i. G-13, 14.

EARLY DELIRIUM. Out of seventeen cases of early delirium found in literature, seven preceded the fever, latest period at which it was observed being end of first week. Common symptom of both, great intellectual obtuseness. Typhoid bacilli probably secrete a poison which diminishes body-heat and excites cerebral cortex like a narcotic alkaloid. *Aschaffenbourg*, i. G-14.

[The writer has observed one case of post-typhoidal insanity due to suppurative mastoiditis and relieved by trephining, and a second case of excessive and persistent delirium supposed to be due to the typhoidal poison, but examination of the ear showed otitis media suppurativa. It is imperative that the ears be examined in every case of typhoid fever presenting symptoms of delusional insanity or protracted delirium, more especially in the third week or later. Judson Daland, Assoc. Ed., i. G-14.]

DYSPHAGIA. Three groups of dysphagia: Mechanical impediments produced by bucco-pharyngeal mucus, reflex dysphagia due to a neighboring lesion, and form of nervous origin by reason of paralysis dependent upon cortical, bulbar, or peripheral lesions. In some cases dysphagia the sole nervous symptom and the prelude to serious nervous disturbances. *Vergely*, i. G-14, 15.

DISAPPEARANCE OF FIRST HEART-SOUND. Disappearance of first heart-sound at the apex or at the base has no grave prognostic signification if the number of the pulsations does not exceed 110. If they exceed this number, disappearance of systolic murmur might be considered as a fatal sign. Seemed rather to depend on toxic action on nervous centres. *Mongour*, i. G-15.

[Weakening or disappearance of the cardiac first sound is more frequently due to fatty degeneration of the muscular fibre of the heart, in large part the result of long-continued pyrexia. This condition urgently demands absolute rest and the especial avoidance of sudden exertion, so that instant death from cardiac failure be prevented. Judson Daland, Assoc. Ed., i. G-15.]

There are, besides weakening, two symptoms,—embryocardiac and bradydiastolic or prolongation of the cardiac diastole. Often grave errors committed in diagnosis of acute myocarditis in fevers, and especially in typhoid fever. Often in very grave symptoms hardly any appreciable muscular lesions of the heart and reciprocally. Many symptoms attributed to myocarditis of typhoid fever must be referred to the effect of functional disturbance or to lesions of the cardiac nervous system. *Huchard*, i. G-15, 16.

SYMPTOMATOLOGY IN CHILDREN. In 80 cases, mortality 31.76 per cent. Characteristic rash in 16; irregular rashes in 2. Death due to severity of the disease associated with marked intestinal lesions, in 2 cases probably peritonitis. Conclusions: Disease common in childhood. Types and varieties do not differ materially from those of adults. Duration shorter. *W. L. Stowell*, i. G-16.

[As the eruption appeared in but 20 per cent. of the cases reported, these observations re-accentuate the well-known fact that the absence of the eruption is of but little value diagnostically in excluding typhoid fever in children. Judson Daland, Assoc. Ed., i. G-16.]

Predominance of cerebral symptoms due to the undeveloped and hypersensitive nerve-centres of early child-life. Swelling of Peyer's patches shows itself early, generally near ileo-cæcal valve. In the infant, restlessness marked and fever persists for days. Constipation usually persistent, typical spots rarely seen. Relapses not infrequent. *I. N. Love*, i. G-16, 17.

Cases of cardiac asthenia not very rare. Heart-failure sometimes appears without warning, the child falling into a syncope and dying. Of very great importance to keep close watch upon the pulse in all cases of typhoid fever in children; of greater importance than to keep accurate record of the temperature. *Sevestre*, i. G-17.

Desquamation in the typhoid fever of children frequent. Of thirty-seven cases observed, in thirty-three generally furfuraceous. *Weil*, i. G-17.

COMPLICATIONS. Local manifestations often observed and so modify the clinical picture as to render possible an erroneous diagnosis. Not, properly speaking, typhoid manifestations, but are due to secondary infections. *Fernet*, i. G-17, 18.

SUPPURATIVE PROCESSES. While the typhoid bacillus may cause suppurations in a certain proportion of cases in the majority of such processes, it is simply the result of secondary infection with either the staphylococcus pyogenes aureus or the streptococcus. *Wright*, i. G-18.

Suppurative arthritis of the wrist induced solely by the typhoid bacillus; proved by microscopical examination. Somewhat similar instance, though merely of a periarticular inflammation. *Martin and Robertson*, i. G-18, 19.

In eight cases out of ten Quincke found

the typhoid bacillus in the medullary substance of ribs from patients who died from typhoid fever; the bones, in typhoid fever, are usually affected. *Carl Beck*, i. G-19.

Case in which, six years after an attack of typhoid fever, abscesses developed in the region of the right clavicle and lower ribs. Examination demonstrated presence of typhoid bacilli. *Sultan*, i. G-19.

Case of parotitis as complication. Began about fourteenth day, gland suppurating twenty-first day. *Kemper*, i. G-19.

Parotitis with clinical diagnosis of hæmorrhagic nephritis. Upon post-mortem examination intestinal lesions of a recent attack of typhoid fever found. Parotid gland infiltrated with pus, showing typhoid bacilli in pure culture. *Janowski*, i. G-19.

Case of typhoid fever complicated by double parotiditis and followed by biliary lithiasis. Bacteriological examination of pus revealed staphylococcus aureus. Hepatic lithiasis probably caused by infection of biliary passages by the bacillus of Eberth. *Gilbert and Fournier*, i. G-19, 20.

Case with early symptoms of thrombosis of the right popliteal artery. Dry and moist gangrene following. Later, symptoms of thrombosis of left femoral vein. Amputation. Recovery. *F. de Quervain*, i. G-20.

Case of bilateral gangrene of the lower extremities, patient recovering notwithstanding amputation of both limbs. *Duchesne*, i. G-20.

Palsy and atrophy in the distribution of the right ulnar nerve. First phalanges of the fourth and fifth fingers in extension, while second and third phalanges of same fingers flexed; and other nervous manifestations as complications. *Wolf*, i. G-20.

Case of paraplegia following typhoid fever and terminating in death. *Mendenhall*, i. G-21.

Five cases of neuritis associated with typhoid, gradually improved. Well-known condition of tender toes after typhoid may be due to neuritis. *Osler*, i. G-21.

Case of aphasia occurring during convalescence in a boy 12 years of age. *S. B. Ward*, i. G-21.

Two cases of hysterical convulsions during the course of typhoid fever, with elevated temperature in connection. Anatomical lesions of nervous centres dependent upon bacterial agency. *Rémond and Coumenges*, i. G-21, 22.

IMMUNITY. Comparative immunity of native troops in India as compared with European troops due to fact that in childhood natives have passed through conditions arising from exposure to the enteric poison which in after-life render them exempt from the disease. Opinion shared by many civil surgeons. *W. H. Climo*, i. G-22.

Affirmation that survival from one attack of an infectious disease confers life-long immunity erroneous. Review of literature showing that in typhoid fever: 2 attacks in 203 cases; 3 attacks in 5; 4 attacks in 1; total 209. *Maiselis*, i. G-22.

TREATMENT. Serum from immunized dogs capable of rendering animals immune to typhoid bacilli, and when administered some time after infection has occurred serves to cure the animals. *Klemperer and Levy*, i. G-23.

Experiments with cultures of blue-pus bacillus injected into guinea-pigs; a week later, with virulent culture of typhoid bacillus. None injuriously affected by typhoid injections, while those which had not received culture of bacillus pyocyaneus died in about twelve hours. *Krauss and Buswell*, i. G-23.

Injections of serum taken from patients convalescing from typhoid fever caused slight pain, but no inflammation nor abscess; did not in any way favorably influence the course of the disease. *Von Jaksch*, i. G-24.

Toxin of typhoid cultivations contained chiefly in the bacilli themselves. After passing through a Chamberland filter, filtrate less virulent. By repeatedly injecting small quantities of virulent cultivations into sheep, antitoxic substances formed in organism which prevent the poisonous action from showing itself. By injecting previously or at the same time antitoxic serum, mice and guinea-pigs protected with certainty against double fatal dose of virulent cultivation. *Peiffer and Beumer*, i. G-24.

Treatment by sterile cultures of bacillus pyocyaneus. Effect similar to that of typhoid bacilli. Of sixty-five cases, in 80 per cent. injection caused a primary rise and a fall of temperature on second day. Stage of continued fever cut short, became remittent, and apyrexia followed. *Rumpf*, i. G-24.

Twenty-eight cases treated with typhoid thymus extract; failure to obtain brilliant results alleged by Fraenkel and Rumpf. Of benefit in a little more than half of cases; severity of symptoms very much modified. *A. Lambert*, i. G-24.

COLD BATHS. Five years of personal experience. Advantages claimed for hydrotherapy in typhoid fever: A mitigation of the general symptoms of the disease, reduction in the mortality. *Osler*, i. G-24, 25.

Death-rate, shown by reports of some of the largest English fever hospitals, still shows a mortality of 17 per cent.; compares unfavorably with mortality in some of the large German and American hospitals, where the treatment by cold bath is carried out systematically. Good effects of antiseptic treatment largely adopted in England not apparent from statistics. *Dreschfeld*, i. G-25.

TYPHOID FEVER (continued).

Experience of last few years not such as to give antipyretic drugs the first place. Regulated bath treatment, alone or combined with quinine, still the best treatment. *Zinn*, i. G-25.

Extensive experiments in effects of cold bath upon urinary toxicity. In all cases toxicity of the urine greatly increased under the influence of cold baths. Course of disease favorably influenced by the increased elimination of toxins produced by the specific microbes of the disease. *Ausset*, i. G-25, 26.

Number of blood-corpuscles often considerably diminished in fever. A bath of ten minutes at 80° F. causes in most cases an increase to the extent even of 500,000 per cubic millimetre. In fever corpuscles accumulate in organs where circulation slowest,—*e.g.*, liver. Cold bath tends to reduce this stasis, causing corpuscles to be more equally distributed in the general circulation. *A. Jacquet*, i. G-26.

Great superiority of tub-bath in reducing temperature. All, whether by sponging or in the tub, given once in four hours; all at 65° F., lasting twenty minutes, vigorous skin friction being given throughout. Eight hundred sponge-baths gave an average drop in the temperature, half an hour after, of $\frac{2}{5}$° F. Two hundred tub-baths gave an average drop in the temperature of $2\frac{2}{5}$° F. *R. C. Cabot*, i. G-26, 27.

Twenty-two cases treated by Yeo's mixture (solution of chlorine to which are added quinine and syrup of orange-peel.) After a calomel or other purge in initial stage, if no diarrhœa, large intestine washed out twice daily with naphtholated water; feeding calculated so that there be no bulky residue. *Gordon M. Byers*, i. G-27.

Aqua chlori (U. S. P.) an efficient means of administering chlorine, but its solution must be freshly prepared every two or three hours. Well diluted it can be administered in doses of from 1 to 4 drachms; lowers temperature, calms nervous disturbance, cleanses the tongue, improves digestion, and acts favorably on intestinal ulceration. *R. W. Wilcox*, i. G-27.

Favorable reports on the same method. "Yeo chlorine" quinine treatment is especially valuable to the country-practitioner, who has to encounter prejudice and poverty. Twenty-six cases reported; no deaths. *Moseley Kerr*, i. G-27, 28.

Five cases in which guaiacol painted over surface as an antipyretic. Average satisfactory dose 15 to 20 drops; application renewed, if necessary, in two hours. Best results obtained when drug combined with cold-water baths or spongings. *J. S. Carpenter*, i. G-28.

Drug alone used, applying it in the right iliac region. Largest dose, 25 drops; greatest reduction of temperature, from 106.8° F. to 101° F. with 5 drops in a patient very susceptible to the drug. *McCormick*, i. G-28.

Guaiacol used without success in one case. *J. W. Yeatman*, i. G-28.

A very good way to give quinine in typhoid fever is to put 20 grains in a pint of ice-water and inject it into the rectum at night; tonic and antipyretic effects of both obtained without disturbing the stomach. *R. E. McVey*, i. G-28.

Tympany of enteric fever often favorably influenced by repeated rectal injections of from 5 to 6 ounces of ice-water, retained for some time in the bowel. In heart-failure, caffeine the best heart-tonic. *J. C. Wilson*, i. G-28.

Important to maintain cleanliness of the mouth; teeth to be brushed daily with an antiseptic powder: ℞ Carbonate of magnesium, $2\frac{1}{2}$ drachms; carbonate of lime, $2\frac{1}{2}$ drachms; boric acid, $1\frac{1}{4}$ drachms; red cinchona-bark, $1\frac{1}{4}$ drachms; essence of mint, q. s. Washing of the mouth with saturated solution of boric acid flavored with thymol; cleansing the tongue with a lemon, followed by swabbing of mucous membrane with following mixture: ℞ Chlorate of sodium or of potassium, 45 grains; glycerin, $\frac{1}{2}$ ounce; water, $\frac{1}{2}$ ounce. *Legendre*, i. G-28, 29.

Eighty-one cases with three deaths. Initial dose of calomel, hydrochloric acid with pepsin, salol, creasote pills, and quinine in solution when intestinal antiseptics indicated. Ice-water as much as patients wished to drink. Constipation treated by enemata of warm water. Brandy, strophanthus, or strychnine for heart-failure. Temperature reduced by baths and ice-water enemata. Diet, peptonized or sterilized milk. *C. A. Ray*, i. G-29.

Delirium at commencement best treated by baths if no contra-indication. If patient is more tolerant of warm baths, progressively cooled, these first may be tried. *Legendre*, i. G-29.

The simpler the treatment in typhoid fever, the better; the less number of drugs given, the better; the less quantity of whatever single drug will answer the purpose that is taken, the better; the more closely nature is followed and the more cautiously rash interference is shunned, the better. *Philadelphia Polyclinic*, i. G-29, 30.

SURGICAL TREATMENT OF TYPHOID ULCER. Nineteen cases (3 of author's own) with 4 recoveries. Up to January, 1895, 24 cases, with 6 recoveries. *Van Hook, Abbe*, iii. C-57.

In intestinal perforation during typhoid fever, recourse should be had to laparotomy. Chances much greater than with simple expectant treatment. *Netschaïeff*, iii. C-57.

Case showing that, under distressing cir-

cumstances, recovery may sometimes be obtained. Two pints of purulent fluid removed. *Abbe*, iii. C-57, 58.

Unsuccessful case perforation not detected. *Merrill Rickets*, iii. C-58.

Unsuccessful case; death eighteen hours after operation from peritonitis, which had existed before operative measures. Sphere of hopeful operative treatment larger than many suppose; usual mode of treatment tends to so dull sensibilities that signs of perforation are often hidden. *Hare*, iii. C-58, 59.

Successful case. Incision four inches long close to median edge of ascending colon; pint of liquid fæces evacuated. Ileum extensively ulcerated, perforation about one-sixteenth inch about two feet above ileo-cæcal valve. *Sifton*, iii. C-58.

TYPHUS FEVER.

Two cases simulating typhus fever to illustrate the necessity of care in making diagnoses; isolation and observation the only means capable of affording positive information. *S. Dana Hubbard*, i. G-30.

Three cases of nervous disturbances after typhus fever, diagnosing transverse myelitis in two cases and disseminated myelitis in the third. *S. Terzykowski*, i. G-30, 31.

In a recent epidemic in Beyrouth, characteristic eruption appeared from third to fifth day in three-fourths of cases. Vomiting frequent, constipation almost constant, abdomen painless and not distended, myocarditis frequently present. During defervescence may render the prognosis serious. Pneumonia, lobar or catarrhal, and pleural effusion never noted. *De Brun*, i. G-31.

TREATMENT. Sero-therapy tried with beneficial result. Serum prepared from two convalescents; three patients injected with ½, 1, 1½ drachms, respectively. Very sensibly relieved state of patients suffering from grave typhus when made in the first days of the disease. Should be reserved for severe cases. *E. Legrain*, i. G-31, 32.

ULCER, VARICOSE.

TREATMENT. Compression and metallic plaques. Diseased surface washed with boric-acid solution or corrosive sublimate 1 to 2000. Sheet of zinc, $\frac{1}{10}$ of a millimetre thick, overlapping edges of the ulcer about 1 centimetre, is then applied. Band of red rubber 5 centimetres wide and 5 metres long wrapped about the limb from foot to below the knee. Daily cleansing. In deep, varicose ulcer, instead of zinc, piece of tin-foil, folded three times and molded over ulcer, is applied; a piece of cotton is placed over it, and the same bandage as above applied. As soon as loss of substance is filled out, zinc substituted for tin-foil. *Ascornet*, iii. J-24.

Dressing of several layers kept constantly wet with a 2-per-cent. solution of creolin. Slough rapidly disappears and odor abolished almost from the start. *S. Tousey*, iv. A-53.

Excellent results from static electricity especially in varicose ulcers. *Marquant*, iv. A-53, 54.

After cleansing ulcers with a solution of sodium bicarbonate, solution of methyl-violet—5 grains to 2 ounces of distilled water—applied to entire area of base and margins. After drying the ulcer it is covered with absorbent cotton, then with Martin's elastic bandage. Repeated every morning. *J. W. Summers*, iv. A-54.

Europhen with boric acid in the proportion of 1 to 3. *Dörmer*, v. A-72.

Commercial kerosene, pure or diluted (from 33 to 50 per cent.), with alcohol applied with camel's hair pencil or piece of gauze. *A. Schirman*, v. A-100.

URÆMIA.

Case followed by gangrene of lung probably due to degeneration of the pulmonary artery. Recovery. *McPhedran*, i. E-23.

Case in which rhythmical spasm of muscles of abdominal wall complicated secondary cardiac lesions. *Moussous*, i. E-23

Case in which intestinal hæmorrhages occurred as complication. Probably due to capillary oozing due to extensive sclerosis. *Lichty*, i. E-23.

Two cases of "explosive" uræmia in brothers. Sudden appearance; short duration. *Fiessinger*, i. E-23.

Hyperpyrexia, due to retention and absorption of thermogenic substances. *Courdoux*, i. E-23.

Case of uræmic hemiplegia due to intracranial serous effusion. *Allemand*, i. E-23.

(For blindness in uræmia see "Bright's Disease" p. i. E-6. Ed.)

TREATMENT. Subcutaneous injections of nephrin, 50 per cent. solution. Satisfactory results in one case. *Gonin*, i. E-23.

Renal impermeability better overcome with leeches to loins than by wet-cupping. Inhalations of oxygen to oxidize retained toxic products and digitalin. Milk diet, because it leaves very little toxic residue. During uræmic attacks ether hypodermically as cardiac stimulant. *Renaut*, i. E-24.

URÆMIC COMA. Successful treatment of a case by inhalation of oxygen. *Pearson*, v. A-118.

Oxygen inhalations followed by complete recovery. *Macalister*, v. A-118.

Venesection if temperature be normal, although some dropsy present; but if temperature below normal with dropsy venesection could not be expected to render the least service. *Sir Benj. Ward Richardson*, v. A-163.

URETER, DISORDERS OF.

ANOMALIES. Girl in whom ureter discharged itself from region of vestibule. When one ureter opens in this manner, incontinence of urine present. *Wölfler*, ii. F-115.

Case where ureters were double from kidney to bladder on each side. Genito-urinary tract showed no sign of disease. *Morestin*, ii. F-115.

Case in which left ureter discharged itself from vulva. Ureter exposed by suprapubic extra-peritoneal incision, incised, and grafted into bladder. Results excellent. *F. Colri*, ii. F-115.

Case in which fistula connected ureter with womb. Ureter dissected free, lower end cut across, external ureteral fistula and uterine sinus closed. By second operation ureteral end connected with bladder. *Mackenrodt*, ii. F-115, 116.

Case in which the ureter was successfully implanted into the bladder by graft recommended by Büdinger. *F. Westermark*, ii. F-116.

Successful intra-peritoneal graftings of ureter into bladder. *Kramer*, *Thiéry*, *Krug*, *Pozzi*, ii. F-116.

URETERO-ABDOMINAL FISTULA. After extirpation of kidney on affected side, important to watch urine carefully to detect evidences of nephritis in remaining organ. *S. Neumann*, ii. F-97, 98.

Importance of carefully watching urine in these cases demonstrated by a case in which nephrectomy performed Case also showing that removal of one kidney in Bright's disease may be a safe and permissible operation where there is not more than one-tenth of 1 per cent. of albumin in the urine. *Bernays*, ii. F-98.

URETERO-UTERINE FISTULA. Case cured by hysterectomy and transformed into a uretero-vaginal fistula. *Mackenrodt*, ii. F-97.

Majority of cases of ureteral fistulæ due to surgical interference. Immediate implantation of ureter into neighboring organ —bladder, intestine—whenever practicable. *Büdinger*, iii. E-57.

CALCULUS OF THE URETER. Case in which stone lodged in lumbo-iliac portion of ureter, causing rupture of latter, abscess, and fistulæ. Calculus removed, ureter dilated and catheterized; cure without sacrificing kidney. Calculi apt to lodge (1) at pelvic outlet; (2) just behind vesical outlet; (3) at lumbo-iliac portion. *Albarran*, iii. E-57.

Calculus removed by peritoneal incision. *Roberts*, iii. E-57, 58.

Calculus lodged in ureter removed by extra-peritoneal incision extending along outer border of rectus. *Briddon*, iii. E-58.

Two cases of removal, one fatal. *Morison*, iii. E-58.

INSTRUMENTS. Easy to catheterize female ureters, but procedures fail when employed in male ureter. New instrument, making catheterization of male ureter practicable. *Nitze*, iii. E-58, 59.

Cystoscope with tube attachment, through which ureteral catheter can be made to pass. *Casper*, iii. E-59.

URETHRA. (See also GONORRHŒA.)

ANOMALIES. Case in which opening of urethra six and one-half centimetres from clitoris in median line of anterior vaginal wall. Vertical slit analogous to male urethra. *W. A. Edwards*, ii. F-108, 109.

Case of double urethra and bladder; unique in medical science. *Péan*, ii. F-109.

CANCER. Instances of cancer of the urethra. *Albarran*, *Rupprecht*, *Bazy*, *Eugene Fuller*, iii. E-15, 16, 17.

Occurs most frequently in subjects of gonorrhœal stricture, at age varying frym 43 to 72 years. Pavement-celled epithelioma, springing from epithelium of mucous membrane, its favorite site being in scrotal and perineal portions of canal. *Albarran*, iii. E-15, 16.

Cases of cancerous involvement of perineal urethra. In both cases previous history of gonorrhœa. *A. T. Cabot*, *G. A. Syme*, iii. E-18.

DOUBLE URETHRA. Two cases in which the canal extended above the normal urethra from the dorsal surface of glans to the pubic region. Abnormal canal lined with pavement-epithelium and surrounded by cavernous tissue. *J. Englisch*, iii. E-15.

Case of double urethræ with congenital penile fistulæ. *G. Martin*, iii. E-15.

Large recto-urethral fistula. Modification of Lawson Tait's flap-splitting operation. Opening in urethra thus quite separated from the opening in the rectum. *H. Allingham*, iii. E-14, 15.

PROLAPSE. More common than is supposed in old women and little girls. Prolapse in former incomplete at first, gradually increasing. In children, sudden and complete from first. Tumor not always reducible. *Henri Blanc*, ii. F-110, 111.

STRICTURE. Extreme, but very gradual, dilatation gives best results. *J. P. Tuttle*, iii. E-12.

[Dilator intended to replace sounds in cases and not supposed to be a divulsor. KEYES AND FULLER, Assoc. Eds., iii. E-12.]

In fibrous form requiring external urethrotomy, large-sized catheter tied in urethra after stricture cut, then suturing about catheter the divided borders of urethra. Catheter removed at end of four days. Better than allowing perineal wound to heal by granulation. *A. Pearce Gould*, iii. E-12, 13.

Longitudinal division, then suturing to-

gether each lateral edge folded on itself. *Chas. Audrey*, iii. E-13.

Cases of impassable stricture, treated successfully by retrograde catheterization. *Legueu, Loumeau, J. E. Summers, Horwitz, P. Mendes*, iii. E-13.

Suprapubic cystotomy associated with temporary vesical drainage as primary procedure in forms associated with infection. *Rollet, Poullain*, iii. E-13.

SYPHILITIC STRICTURE OF URETHRA. Two classes: Transitory, resulting from localized infiltration, cured by general treatment; permanent, resulting from cicatrization following destructive lesions. *Albarran*, iii. E-13.

TRAUMATIC STRICTURE. Case of traumatic stricture successfully treated by resection of urethra. *G. Chismore*, iii. E-13, 14.

Successful excision of two centimetres of urethra, the seat of a dense, fibrous stricture. *Pousson*, iii. E-14.

Two cases treated by perineal section and introduction between urethral ends, strictured area having been excised, of a skin-flap turned in from perineal wound. *Von Dittel*, iii. E-14.

Case in which prostato-membranous urethra had been torn nearly across, extensive hæmorrhage proceeding from laceration of plexus of Santorini. *E. Hurry Fenwick*, iii. E-14.

TUMORS OF THE URETHRA. Case of spindle-cell sarcoma of female urethra. *McWheeney*, ii. F-111.

Case of carcinoma of female urethra and bladder; growth removed, permanent suprapubic drainage. *W. H. Battle*, ii. F-111.

URETHRITIS. Undescribed cause of some forms of urethritis: Small cysts of submucous tissue of urethra filled with thick, brownish pus; some closed, others communicating through minute orifice with urethral canal. The latter furnish the drop of pus seen in chronic urethrorrhœa. *Verchère*, ii. F-109, 110.

TREATMENT. Early treatment advisable. Lavage of urethra: Corrosive sublimate (1 to 2000) or permanganate of potash (1 to 250) best. Urethra coated with preparation of resorcin (10 to 30). *E. Rollet*, ii. F-110.

Picric acid may be introduced directly into bladder; antiseptic, analgesic. *J. Vigneron*, ii. F-110.

URETHROCELE IN WOMEN. Two classes: True, usually due to mechanical injuries during labor; pseudo-urethrocele, or cystic tumor, lacunar dilatation containing calculi. Treat by incision or excision of the urethral sac and removal of foreign body. *A. Boursier*, ii. F-111.

URETHRO-VULVAR FISTULA. Case due to proliferating urethritis. Patient having two urethral orifices separated by a band; section of latter. Recovery. *Verchère*, ii. F-98.

INSTRUMENTS. The Nitze-Oberlænder urethroscope with modifications suggested by Kollmann and Heynemann. *H. R. Wossidlo*, iii. E-18.

An operating aëro-urethroscope; instruments of this nature heretofore useless for operating purposes. *E. Hurry Fenwick*, iii. E-23, 24.

Cases treated by means of endoscopical apparatus. *Klotz*, iii. E-24.

URICÆMIA.

Uric acid in alkaline solution gives, with phospho-molybdic acid and potash, a crystalline precipitate of a deep-blue color and metallic splendor. Crystals dissolved by hydrochloric and sulphuric acids, giving a blue liquid highly sensitive. *Th. R. Offer*, i. E-66.

Uric-acid crystals normally colored by the yellow pigment urochrome and the reddish coloring matter uroerythrin, and not by urobilin or hæmatoporphyrin. *Garrod*, i. E-66.

By Ehrlich's triacid mixture, to which methyl-green in excess added, blood of patients suffering from gout and allied disorders (uratic calculi, asthma, certain dermatoses, neuralgia, etc.), found to contain certain peculiar black-stained granules disposed around nuclei. *Neusser*, i. E-66, 67.

Examination showing that Horbaczewski's theory, that uric acid is a product of destruction of leucocytes, does not hold good in all cases. *Richter*, i. E-67.

Fæces of a case of leukæmia found to contain xanthin bases in very large amounts, —ten times the quantity excreted normally by the urine. *Weintraud*, i. E-67.

New method for ascertaining the amount of uric acid passed undissolved. (See text.) *Rosenfeld*, i. E-68.

Appearance of urates denotes an action on the part of the phosphates, while crystalline urates or brick-dust deposits depend either on a total absence or a relatively insufficient quantity of disodic phosphate. *Ott*, i. E-68.

In judging effects of uric acid its solubility in the blood must be taken into account. This solubility is favored by everything that increases the alkalinity; uric acid accumulates because it is insoluble, while the soluble urea is practically excreted just as it is found. *Haig*, i. E-68.

Two forms of disease have many points of analogy: Arthritic diathesis, properly called (Flint's acidæmia), and oxaluria (Da Costa's lithæmia). *Cavazzani*, i. E-69.

Paraxanthin and other uric-acid leucomaines the main factors of leucomaine poisoning. A very important phase of autointoxication may manifest itself in at least three distinct forms: (1) true migraine; (2) migrainous epilepsy; (3) migrainous gastric neurosis. *Rachford*, i. E-69.

URINALYSIS, GENERAL. (See also ALBUMINURIA, URICÆMIA, DIABETES, and all diseases in which examination of the urine is indicated.)

Case in which urine did not contain any albumin, but contained indican, which originates in abnormal intestinal fermentation. *Oddo, Sarles*, i. E-76, 77.

ACETONURIA. Certain substances yield reactions usually characterizing acetone. *Salkowski*, i. E-69.

In healthy subjects after narcosis acetonuria sets in, lasting from a few hours to several days; this post-narcotic acetonuria indicates an increased destruction of albumin. *Ernst Becker*, i. E-69, 70.

New test for acetone. (See text.) *Malerba*, i. E-70.

ALKAPTONURIA. Case of typical alkaptonuria, urine of the patient showing an abnormally low excretion of uric acid. Reductive power of urine was not influenced by aromatic series nor by the administration of carbohydrates, but remarkably increased under an abundant meat diet. *H. Ogden*, i. E-75.

Experiments with a view of testing the correctness of the hypothesis that homogentisic acid (alkapton) originates by an unusual form of metabolism from tyrosin. (See text.) *H. Embden*, i. E-75.

CYLINDROIDS. Cylindroids, or bodies resembling casts, not characteristic of kidney disease; probably more often caused by irritation of lower urinary tract, which, in a measure, extended to the kidneys. *Purdy*, i. E-66.

HYDROTHIONURIA. Case of a patient who, during convalescence from pneumonia, showed albuminuria; the urine, at the onset clear and free from smell, often becoming in a few hours very cloudy, developing a smell resembling that of sulphuretted hydrogen. Bacterium endowed with this property; starting-point located in the urethra. Typhus-similis bacterium. *Karplus*, i. E-75.

PEPTONURIA. Peptonuria occurs frequently or regularly in certain diseases, as croupous pneumonia,—just before or after the crisis,—purulent meningitis, peritonitis, and empyema. (See text.) *Senator*, i. E-58.

PIGMENTS. Tests for urobilin in seventy-two cases of urobilinuria in considerable quantity in measles and in scarlet fever; less marked in diphtheria; present in pneumonia and empyema. In typhoid fever it was out of proportion to the virulence and intensity of the infection. *Giarré*, i. E-71.

For estimation of urobilin: Extracting urobilin by means of chloroform, in presence of copper sulphate and ammonium sulphate, and in colorimetric comparison of the colored chloroform solution of urobilin with standard solutions. (See text.) *A. Studensky*, i. E-71.

UREA AND KREATININ. Experiments confirming Bouchard's views as to the non-toxicity of urea. Although urea in itself is not a toxic body, the value of a quantitative estimation of it is not to be lost sight of; it forces renal barrier and if urea be diminished other waste material must be diminished in proportion, thus making the quantity of urea a criterion, to a certain extent, of toxic matter retained in the system. *Harvey Cook*, i. E-70.

Test for kreatinin in the urine. (See text.) *Kolisch*, i. E-70.

To detect kreatinin in the urine with nitro-prussiate of soda and soda, the urine must be naturally acid or acidified. *Oechser de Coninck*, i. E-71.

UROSPECTRIN. Normal urine contains a pigment which he has named *urospectrin*. Solutions in ether and in alkalies give four absorption bands; acid solutions give two bands, similar to hæmatoporphyrin, but differs from it in some respects. (See text.) *Saillet*, i. E-72.

SPECIAL REACTIONS. Rosenbach's Burgundy-red reaction depends essentially upon decomposition and oxidation, either direct, by means of nitric acid, or indirect, by means of some other mineral acid of indol compounds always indicative of abnormal process of intestinal putrefaction. *Lubiani*, i. E-76.

DETECTION OF CHLOROFORM AND ARSENIC IN THE URINE. Best test for chloroform in urine is to distill the urine to one-third its volume in a current of air previously freed from every trace of chlorine, boiling the distillate with a pure alcoholic solution of nitrate of silver. In every case cloudiness occurred, which disappeared on the addition of ammonia, and was, therefore, due to chloride. *Scalfati*, i. E-78.

Arsenic can be most easily detected. Reinsch's test, properly applied, is sufficiently delicate and certain. *Dixon Mann*, i. E-78.

URTICARIA.

TREATMENT. Ichthyol used with remarkable success in 4-grain doses in a wafer twice a day after principal meals. *Lanz*, iv. A-54.

Satisfactory results from pilocarpine hydrochlorate; has a pronounced effect upon circulatory and secretory activity of the skin. *Eshner*, iv. A-54.

If well borne, antipyrin; if not, pills of hydrochlorate of quinine and ergotine, each $1\frac{3}{4}$ grains, and extract of belladonna, $\frac{1}{3\frac{1}{2}}$ grain; 3 to 6 daily. Patient to be placed almost exclusively on milk diet, with a little Vichy water, and covered with starch-powder and fine linen rags. *Brocq*, iv. A-54.

Produced rapidly by a single dose of 10 grains of antipyrin. *E. Knight*, v. A-27.

Case in which eruption occurred twelve times. Affected part quite œdematous, two or three patches transformed into large blisters. *Ballin*, v. A-27.

UTERUS, DISEASES OF.

DISPLACEMENTS. The pelvic fascia is the supporting agency which prevents displacement of viscera. Genital organs do not simply pass through a foramen in fascia, the edges of which hold on to the uterus and vagina by a few stout fibres; the fascia sends dense, ligamentous bands into supravaginal part of cervix and vaginal wall. These bands support uterus and vagina. Anteversion and anteflexion natural. Uterus retained in anteflexion by gravitation and abdominal pressure from above. *Mackenrodt*, ii. F-1.

Median posterior crest of body of uterus a sign of retrodeviation. At base of posterior *cul-de-sac* crest felt distinctly between two plane surfaces from one and one-half to three centimetres above cervix. *Le Dentu*, ii. F-1, 2.

Importance of lateral displacements generally overlooked. Special attention to congenital cases; pain referred to elongated broad ligament of opposite side. *Edward J. Ill*, ii. F-2.

RETRODISPLACEMENTS.

ALEXANDER'S OPERATION. Alexander's operation one of the most beneficent ever devised. Indicated in retrodisplacements with prolapse of one or both ovaries where pessary cannot be worn. *Clement Cleveland*, ii. F-2, 3.

Field of operation limited. Does not always relieve symptoms, even though uterus movable. *F. H. Davenport*, ii. F-3.

Experience, though considerable, not in favor of operation. Round ligament, by failing to give proper support, permits recurrence of retrodisplacement. *Ely van der Warker*, ii. F-3.

Function of round ligament to keep uterus forward. Hence operation not of service in prolapse. Aim should be to pull out ligaments sufficiently to throw uterus past dead centre. Intra-abdominul pressure will then maintain the organ in proper position. *H. C. Coe*, ii. F-3.

Having seen Alexander operate a number of times, impressed with uselessness of operation and had never performed it. *T. A. Emmet*, ii. F-3.

Operation before us since 1883; objections at that time same as those at the present time; some objectors have become advocates. *Polk*, ii. F-3.

[This operation should have but a limited application. It should not be done where adhesions exist, whether uterine or of the appendages, as the uterus is dragged forward by the shortened ligaments and backward by the adhesions, increasing the discomfort. The ligaments are sometimes rudimentary. The writer has found them so in two cases. Two wounds are required. Infection may result in loosening of the sutures and dragging back of the ligament, carrying infection into a groove which is subsequently difficult to reach and treat. E. E. Montgomery, Assoc. Ed., ii. F-3, 4.]

Reports from operators tabulated, aggregating 1300 cases. Failures did not exceed 10 per cent. Operation useful and reliable one within proper limits. *J. G. Blake*, ii. F-4.

Thirty cases in all of which uterus remained permanently in normal position. *O. Küstner*, ii. F-4.

After-history of fourteen cases. Retroflexion fully and finally cured by operation, granting that cases chosen are those in which uterus is not fixed. *E. Kummer*, ii. F-4.

Operation should not be attempted if the uterus is fastened in retroversion by strong adhesions or by pelvic infiltrations. *J. F. Robinson*, ii. F-4.

HYSTEROPEXY. Terms "ventrofixation" and "hysteropexy" objectionable, because some months after operation uterus found freely movable in position of anteflexion. "Suspensio uteri" suggested. Two methods: Firstly, two ligatures of silk passed on either side through peritoneum and subjacent tissue about two centimetres from abdominal incision and parallel to it, then round each utero-ovarian ligament, respectively; when tied they raise uterus into anteflexion. Secondly, passing two silk sutures through peritoneum and subperitoneal tissue in transverse direction, about 1.5 centimetres from incision. Suture carried through body of uterus near fundus, then through peritoneum as on the opposite side. Two ends brought out of incision and tied, uterus and anterior abdominal wall into close apposition. Forty-five cases. *Kelly*, ii. F-4, 5.

Two cases operated by Kelly's method. Operation very valuable in extreme anterior displacements. *H. R. Holmes*, ii. F-5.

Twenty-six cases without mortality and with very gratifying results with Kelly's method. Importance of scarifying peritoneum and anterior surface of uterus to favor adhesion. Organ quite movable after operation. Preferable to Alexander's operation. *A. Lapthorn Smith*, ii. F-5.

Posterior surface of uterus now employed instead of ovarian ligament in suspending uterus, because little easier and quicker. Results by both methods about the same. *Kelly*, ii. F-5.

[It is, without question, preferable to the Alexander operation, inas muchas there is

UTERUS, DISEASES OF (continued). but one incision, less dissection, and consequently less disturbance of the tissues. Should infection occur, it is more accessible. Two sutures should be used, just posterior to the fundus. In passing through the abdominal wall these sutures should not include the peritoneum; so that the peritoneal surface of the uterus should be brought in contact with the muscular tissue of the abdominal wall. The precaution should be exercised not to include too large an amount of uterine tissue. If the sutures are absorbable or not buried, a pessary should be worn for a month to prevent strain upon the band of adhesion. E. E. MONTGOMERY, Assoc. Ed., ii. F-5.]

Seventeen cases successfully treated by suspending uterus by ovarian ligaments, as recommended by Kelly. *Reuben Peterson*, ii. F-5.

Intra-abdominal shortening of round ligaments. A moderate-sized opening is made in abdominal wall and the adhesions are broken up. Patient in Trendelenburg position; large, flat sponge over intestines. Uterus pulled to one side to put opposite round ligament upon stretch. Silk-worm gut passed through to abdominal wall and under point where round ligament inserted into uterus so as to include considerable quantity of uterine tissue; loop then tied to uterus. Second stitch passed through ligament just as it leaves abdominal wall, then through the loop in portion of ligament nearest uterus. Ligature tied and cut as before. *Matthew D. Mann*, ii. F-6.

Hysteropexy likely to supplant abdominal cœliotomy, ventrofixation, and Alexander's operation in large number of cases. Fundus uteri brought out through wound in the anterior *cul-de-sac*, and sutures passed by sight. Longitudinal incision preferred; four advantages over transverse: (1) less hæmorrhage; (2) more room; (3) no danger of wounding rectum; (4) less chance of coming into contact with intestines. *Vineberg*, ii. F-6.

[Vaginal hysteropexy of doubtful service in relaxed vagina. In such cases the dragging back upon the bladder adds to the discomfort. E. E. MONTGOMERY, Assoc. Ed., ii. F-6.]

Vaginal *cul-de-sac* opened and uterus replaced. Wad of gauze placed in incision, while vagina distended with another, but larger, wad, which in turn tends to upset uterus forward and keep it there during healing process. *W. B. Pryor*, ii. F-6, 7.

PESSARIES. In lateral displacements pessaries seldom indicated; if required at all, indication better met by cotton tampon. In anterior displacements varieties now or until recently employed harmful rather than helpful. In prolapsus pessaries now used clumsy and irritating. Indications more satisfactorily met by surgical procedures. In posterior displacements often serve useful purpose if properly adjusted. Palliative; seldom curative. The best that of Albert Smith. *Andrew F. Currier*, ii. F-12, 13.

Injurious effects of pessaries: 36 cases of vesico-vaginal fistula, 21 cases of perforation of bladder, 1 case of uretero-vaginal fistula, 24 cases of perforation of rectum, 11 cases of perforation of rectum and bladder, 2 cases perforation of Douglas's *cul-de-sac*, 5 cases of forcing pessary into tissues round vagina. *Denslow Lewis*, ii. F-13.

Case in which uterus slid through ring of stem-ring pessary and became very tightly constricted. *Elderdice*, ii. F-13.

[I saw a case of prolapsus of uterus in which a retroversion pessary had been worn for twenty-six years without removal. It was imbedded in the vagina for two-thirds of its length. Only a small portion of the anterior loop projected. The vaginal tissues were nearly an inch in thickness over the posterior bar. Instead of cutting through this to remove the pessary, the pessary was drawn down upon one side, cut in two with a pair of bone-forceps, and a similar course pursued on the opposite side. The posterior half was then gently turned out of its track, leaving the uterus supported by the dense adhesions. E. E. MONTGOMERY, Assoc. Ed., ii. F-13.]

PROLAPSE. In majority of cases of prolapse anterior or posterior colpoperineorrhaphy combined with vaginal or ventral fixation will bring about recovery. Where these fail, complete extirpation, especially if patient past menopause. *Græfe*, ii. F-7.

Importance of thoroughly understanding etiology of each case. In majority of instances relaxation of vaginal walls or atony of vulvar walls causes condition. *Fehling*, ii. F-7.

Vaginal hysterectomy in complete genital prolapse occasionally necessary. When patient past menopause accidents due to atresia following supra-vaginal amputation of cervix need not be feared; latter operation also efficacious, less serious than hysterectomy. When supplemented by perineorrhaphy gives excellent results. *Pozzi*, ii. F-7, 8.

NEW OPERATIONS FOR PROLAPSE. Four or five silver-wire sutures inserted beneath vaginal mucous membrane, so placed as to eventually form supporting body to uterus; then tightened to prevent prolapse after replacement. *Freund*, ii. F-8.

Freund's method not a new one. Old operation devised by Giambattista Bellini. Permanent cure cannot be insured. *Gärtig*, ii. F-8.

Westermark's operation used with permanent success in twenty-two cases which had

proved rebellious to other methods. Novelty in this method lies in operation of colporrhapy being lateral. *Otto Holst*, ii. F-8.

Statistics of operation for prolapse at Wyder's clinic in Zurich: 229 cases operated on; second operation in 8 cases. Anterior colporrhaphy in almost every instance; generally cuneiform excision or amputation of cervix combined with it. In 72 cases in which results known, 14 relapses. *Ida Schmid*, ii. F-9.

HYSTEROPEXY IN PROLAPSE. If rational to combat prolapse by hysteropexy, no less rational to treat causes which produced prolapse,—*i.e.*, increase in size of viscera, relaxation of vagina and suspensory ligaments, diminution of perineal resistance. Operator should first practice such preliminary measures. *Segale*, ii. F-9.

Ventral fixation by means of detached and replaced urachus. *Fowler*, ii. F-9, 10.

Sudden death eleven days after hysteropexy. Uterus and ovaries dotted with miliary tubercles. *Talley*, ii. F-10.

Removal of uterus from woman who had undergone hysteropexy for prolapse a year previously. Dragging, tearing pains constantly at site of adhesion. *Mackenrodt*, ii. F-10.

Case of difficult labor due to anterior hysteropexy, which caused such strong adhesions as to render Cæsarian section necessary. Confirms assertion of Greig Smith, that, where serous surface brought in contact with wound, adhesions formed particularly solid. *Goubaroff*, ii. F-10, 11.

Elytrorrhaphy, Sims's position. Sims's speculum, blade of which perforated at extreme end. Cervix attached to end of latter by means of temporary suture, to dispense with sponge-probang as obstruction. Organ readily falls into decided anteversion. First step to denude two semicircular strips in vaginal wall close to uterus on either side about one-third inch wide, concavity toward cervix. Each denuded surface then closed upon itself by means of silk-worm gut sutures. Second step then lifts cervix bodily upward and backward. Two strips one-fourth inch wide denuded, extending along each lateral sulcus of the vagina from lower point of former denudation to vaginal outlet, terminating on either side of orifice of urethra. Lateral edges of each now brought together by sutures passed obliquely across denuded strip. Effect of method of suturing to slide anterior vaginal wall upward and backward on posterior vaginal wall and fix it there. Cervix uteri must participate in movement. *Dudley*, ii. F-11, 12.

[Many cases of apparent prolapsus of the uterus are the result of supra-vaginal elongation of the cervix. Plastic operations in these cases are usually ineffective. A sufficient portion of the cervix cannot be amputated to give the necessary relief. The method suggested by Baldy will be found of service. It consists in plastic operation upon the vagina and perineum, the opening of the abdomen, amputation of the body of the uterus at the junction of the cervix, covering over the stump with peritoneum, and then the introduction of a ligature from the upper part of the broad ligament on either side to the side of the stump. This tied, lifts the stump up to a higher level, and thus elongates the vagina, overcoming the subsequent tendency to displacement. Noble has modified this operation by stitching the stump fast to the anterior abdominal wall. E. E. MONTGOMERY, Assoc. Ed., ii. F-12.]

Uterus dilated with Hegar dilator; large hysterometer introduced and used by assistant to push uterus against abdominal wall. Surgeon makes incision and finds at once anterior uterine wall. Incision only four or five centimetres long; uterus fixed at level. *Laroyenne*, ii. F-12.

LACERATION OF CERVIX. At Mount Sinai Hospital during past twelve years most common disease laceration of cervix,—518 cases. *Mundé*, ii. F-21.

Importance of diagnosticating as early as possible between a bad laceration and beginning cancer of the cervix, which in practically all cases occurs in old laceration. If with local treatment condition improve, it is not beginning cancer. Second test: Microscopical examination, cutting wedge-shaped piece out with curved scissors. Practically painless. *Penrose*, ii. F-21, 22.

If suspected area scraped with a sharp spoon, will simply bleed if non-malignant; if cancerous, soft, cheesy nature of diseased tissue readily recognized. *Sinclair*, ii. F-22.

TREATMENT. Nervous disorder improved by uterine trachelorrhaphy only by virtue of beneficial action of operation on general health. *Ford*, ii. F-22.

Frequent cause of failure to relieve reflex nervous disturbance is neglect to remove cystic degeneration in the anterior lip. *Cleveland*, ii. F-22.

In cases of serious pelvic invasion with lacerated cervix, imperative first to do pelvic operation and at another time cervical repair. Silk-worm gut with shot best material for sutures. Strangulation to be avoided. *Price*, ii. F-99.

Emmet's operation in 342 cases; 316 recoveries. In 160 cases symptoms relieved by sharp curette, iodized phenol, and nitric acid. *Mundé*, ii. F-22.

Operation should be performed with patient in Sims's position. All the morbid tissue should be extirpated. None should be left for absorption. *Emmet*, ii. F-22, 23.

Extensive laceration of pelvic floor, of fifteen years' standing; three unsuccessful

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operations. Emmet's method employed with success. On twenty-fifth day functions of all muscles, including sphincter ani, restored. *O. H. Hund*, ii. F-100.

TUMORS.

FIBROMA OF UTERUS.

PATHOLOGY. Researches confirming theory that myomata are originally developed from the muscular coat of the uterine arteries. *Kleinwächter*, ii. F-23, 24.

Condition of tubes in 42 cases of myoma. Normal in 17; in 2 unilateral catarrh. In 23 cases bilateral tubal disease, beginning with salpingitis of mildest form and reaching the most severe varieties of interstitial salpingitis, pyosalpinx, follicular salpingitis, and hydrosalpinx. *Fabricius*, ii. F-24.

SEQUELÆ. Study of many published cases reveals relatively frequent co-existence of uterine fibroids and uterine sarcomata. In some cases nodules presenting characteristics of fibromyomata, besides one or more sarcomatous tumors. In others nodules partly fibromatous and partly sarcomatous, while histological elements of two tumors remain quite distinct. *Laurent*, ii. F-24, 25.

Study of 213 personal cases; 25 per cent. unmarried, 75 per cent. married; from 25 to 30 per cent. of latter sterile. No effect whatever upon fertility. Danger of pregnancy when myoma exists greatly overestimated. *Hofmeier*, ii. F-25.

TREATMENT. Ablation of the uterus, vaginal or by laparotomy, a proceeding far too commonly adapted. *Obalinsky*, ii. F-25.

In Europe, five years ago, mortality following extirpation 25 per cent.; now less than 8 per cent. In United States, mortality even three years ago only 7.8 per cent. *Editorial, Therapeutic Gazette*, ii. F-26.

When a woman finds herself an invalid from a fibroid uterus, unless tumor easily removed per vaginam, by enucleation, or morcellation, conservative surgery demands hysterectomy. *Gordon*, ii. F-26.

Mortality-rate at the present time from hysterectomy only 1 or 2 per cent. if operation confined to suitable cases. Infra-pubic route too much neglected. *Polk*, ii. F-26.

By total hysterectomy patients relieved of symptoms, although they suffer from less important symptoms of menopause. If untreated many cases soon become inoperable. *Baldy*, ii. F-26.

Not justifiable to remove uterine fibroid unless it produces symptoms by pressure, rapid growth, or causes profuse hæmorrhage, or patient insists on operation. If kept under observation—as they should be—"inoperable" stage not reached. *Mundé*, ii. F-26.

Total hysterectomy only for tumors producing profuse hæmorrhage or which cause severe suffering by pressure. *Kelly*, ii. F-26, 27.

For years misrepresented as opposed to removal of uterus. Main point is that no one should remove uterus until enabled to form intelligent opinion of true position and condition of fibroid tumor. *Emmet*, ii. F-27.

Castration, removal of healthy organs, etc., can only be practiced while our methods of operating still imperfect. *Varnecke*, ii. F-27.

Of various methods, preference for extra-peritoneal treatment of stump, where abdominal walls not too thick and tumor can be lifted out so that a constrictor can be applied around entire pedicle. *Ernest Cushing*, ii. F-27.

Twenty-six operations, one death. By ligating broad ligaments, dissecting off anterior and posterior peritoneal flap, and supra-vaginal amputation of the uterus. After cauterizing cervical canal, latter closed by suturing raw edges of stump; peritoneal flaps united with fine silk. *Homans*, ii. F-27, 28.

In myomectomy, difficulty in securing broad ligaments and getting at uterine arteries not great; ureters and adjacent structures cannot be damaged. When fibroid invades broad ligament it must first be enucleated, the broad ligament then cut away. But 1 out of 20 cases lost. *Delagénière*, ii. F-28.

Myomectomy preferred to hysterectomy; operation to be supplemented by removal of appendages (1) when greatly diseased; (2) when enucleation has so injured uterus as to render it incapable of performing functions; (3) when uterus contains additional myoma so inaccessible as to make enucleation hazardous. *E. C. Dudley*, ii. F-28.

To avoid dangers incidental to myomectomy, operation to be completed rapidly, leaving amputation of uterus to the last, after sewing peritoneum below elastic ligature, then uniting fascia and skin separately. Sixty-five cases. *Schauta*, ii. F-28.

One hundred and sixty operations for fibroids. Morcellement reserved for submucous fibroids of moderate size. Operation through abdomen preferred. Mortality, 1 in 54; with other methods, 7 per cent. *Carle*, ii. F-28, 29.

In sixty-nine hysterectomies only two cases lost. Vaginal operation preferred whenever practicable. *Von Erlach*, ii. F-29.

In tumors not exceeding in size head of fœtus, operation through vagina with or without preservation of uterus indicated. Where larger, combined method,—*e.g.*, separation of tumor above cervix from abdomen; removal of remaining stump, piecemeal, through vagina. *Péan*, ii. F-29.

Two cases in which, after laparotomy, great diminution in size of uterine myoma. In first, incision closed without anything

being done to tumor or appendages. In a third case appendages—both sides—removed, fibroid disappearing entirely in two years. *Davenport Parry*, ii. F-29.

Dry extract of sheep's thyroid gland. Four to eight tablets daily, equivalent to half a thyroid gland. Distinct improvement in two cases. *Jouin*, ii. F-29.

ELECTRICITY. Electrical treatment does not diminish the size of the tumor in majority of cases of fibroids. *Burrage*, v. B-12, 13.

In three cases galvano-puncture through vagina, current up to 150 milliampères, fifteen minutes, under anæsthesia, one sitting only. Tumor gradually disappeared. *P. F. Mundé*, v. B-13.

Electricity in uterine tumors both useless and dangerous. *Cushing*, v. B-13.

Very satisfactory results by Apostoli's treatment in nine cases reported. *Corson*, v. B-13.

The continuous current, even in small doses, destroys striated or smooth muscular fibre. Thus explains the physiological death of the fibroma. *Levy*, v. B-13.

Case cured by nine electro-punctures through abdominal wall; intensity progressively increased from 65 to 300 milliampères. *G. B. Massey*, v. B-12.

Low ampèrage (below 75 milliampères) recommended. Better to keep out of uterine canal. Special electrode, having movable insulated cup. *Gunning*, v. B-13.

Electricity does most satisfactory work in hæmorrhagic tumors with pelvic pain and pressure. *F. H. Martin*, v. B-13.

Those who cling to the Apostoli method are those who have a dread of incurring increased risk of hysterectomy. *Fowler*, v. B-14.

With electricity, diminution of the size of a fibroid never observed. *Delatour*, v. B-14.

It is not necessary to use the high voltage which is so frequently employed. *Wunderlich*, v. B-14.

MALIGNANT TUMORS.

CANCER. Contents of cells in one case permanent forms of intra-cellular amœbæ. *Von Müller*, ii. F-30.

Study of twelve uteri removed by operation. Cancer of cervix extends through chain of lymphatics along blood-vessels to intra-muscular lymph-spaces connecting cervix and body. Cancer of body of relatively slow growth, extending centrifugally. Lymphatics between middle and outer muscular layers first affected; cervix later. *Seelig*, ii. F-30.

Cases of horny epithelioma. Disease secondary in cervix. *Flaischlen*, ii. F-30.

Special form of uterine cancer, of diffuse type with polynuclear embryonic cells non-striated. *Condamin*, ii. F-30, 31.

A method suggested for extirpating considerable proportion of broad ligaments with cancerous uterus. Illustrated by colored plate and wood-cuts. *J. G. Clark*, ii. F-31, 32.

Vaginal hysterectomy, supra-vaginal excision by the cautery-knife, not loop, and thorough additional cauterization of bottom, sides, and edges of excavation. *John Byrne*, ii. F-32, 33.

Thermo-cautery recommended. Paquelin cautery in an inoperable case permits the removal of more diseased tissue in broad ligaments than if clamp or ligatures used. *A. Rosner*, ii. F-33.

Recurrence after hysterectomy not necessarily due to infection of healthy raw surfaces during the operations. Cancer-cells in lymphatics of broad ligaments; when these vessels are divided they form foci, from which rapid recurrence takes place. *Veit*, ii. F-33, 34.

TREATMENT. Cases only are fit for operation in which the disease is recognized early, is limited to uterus, and cellular tissue around the cervix and broad ligaments is free from infiltration, uterus being freely movable. *Bowreman Jessett*, ii. F-34.

Operation always indicated when malignant growth in cervix and another in fundus, with tract of healthy tissue between two centres. *Paschen*, ii. F-34.

[As this is difficult to determine, it is better in all cases to extirpate the uterus, even if a small portion only of the cervix be involved. E. E. Montgomery, Assoc. Ed., ii. F-34.]

Extirpation when the uterus free and no evidence of disease having extended beyond. *Jacobs*, ii. F-34.

Most important prognostic element in cancer of neck is spreading of process to vagina or parametrium. *Mangiagalli*, ii. F-34.

Forty-four vaginal hysterectomies for cancer, with three deaths. *Richelot*, ii. F-35.

Hysterectomy has a limited field; object to cure. Cœliotomy offers better prospect than vaginal operation; condition of broad ligaments seen; sutures can be placed beyond diseased portions. No advantage in using clamps. Morcellation objectionable; risk of infection. *Mackenrodt*, ii. F-35.

Parenchymatous injection of alcohol, when hysterectomy impracticable, when infiltration of neighboring tissues suspected, when recurrence follows radical operation. *Vulliet*, ii. F-35.

Intra-parenchymatous injections of 6-per-cent. solution of salicylic acid in alcohol at 60° employed with equally good results. *Bernhart*, ii. F-36.

As a dressing for uterine cancers: ℞ Benzoin, iodoform, magnesia carbonate, of each 2 drachms; arrests and diminishes fetid se-

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cretions; prevents excoriations. *Lucas*, ii. F-36.

[Dusting with pyoktanin associated with gauze packing decreases the discharge and improves the general condition. E. E. MONTGOMERY, Assoc. Ed., ii. F-36.]

MALIGNANT ADENOMA. Moderate glandular hypertrophy and hyperplasia, associated with chronic inflammation distinct from any tumors. In uterus always malignant; invades neighboring tissues and recurs unless completely removed. Transitional step between simple glandular hyperplasia and carcinoma. Prognosis after removal better than in carcinoma. *S. Stone*, ii. F-38, 39.

MALIGNANT DECIDUOMA. Distinct variety of malignant tumor; has well-established etiological relations with pregnancy; rapidity of evolution makes an early diagnosis important. *G. W. Beach*, ii. F-36.

Often associated with hydatidiform mole; portions of mole remain after greater part expelled. Superficial epithelial layer of chorionic villi proliferates, cancerous change evolved. *Fraenkel*, ii. F-36, 37.

Probably cell-boundaries re-appear in syncytium and new growths arise from this alone. *Kossmann*, ii. F-37.

Illustrative case, in which microscope proved that masses in wall were uterine placental tissue derived from relics and undergoing malignant degeneration. *Hartmann and Toupet*, ii. F-37.

Microscopical examination of the scrapings proving growth to be a deciduosarcoma. Three distinct forms: (1) proliferation of connective tissue of a decidual relic; (2) proliferation of epithelium of villi; (3) commonest variety of sarcoma. *Schauta*, ii. F-37, 38.

TUBERCULOSIS OF UTERUS. Found often in autopsies; clinically rarely noted; three such cases seen with Kelly. Endometrial condition usually secondary to tuberculosis of Fallopian tubes; no definite symptoms; diagnosis from scrapings. Removal of uterus and tubes recommended. *Cullen*, ii. F-39.

Genital tuberculosis results from direct external infection through the vagina; tubes more susceptible than uterus so long as menstruation persists. Important to preserve function of menstruation; hence whole or portion of ovaries should be spared when diseased tubes extirpated. *A. Sippel*, ii. F-40.

Case of secondary tuberculosis of uterus involving external os; history of diarrhœa and hæmorrhage followed by leucorrhœa. *Reverdin and Buscarlet*, ii. F-40.

HYSTERECTOMY.

INCISIONS. Two accessory incisions widen field of operation: Division of vaginal wall from below cervix. Another incision continuing lateral incisions, carried posteriorly to point level with apex of coccyx. *Schuchardt*, ii. F-40.

Evidence strongly in favor of the use of ligature as against clamps. Silk for the uterine arteries; for ovarian and broad ligaments, catgut. *Bowreman Jessett*, ii. F-41.

CLAMP OR SUTURE. Preference for ligature as against clamp. *Cushing*, ii. F-41.

Will never again leave a clamp in the body except in dire necessity,—*i.e.*, unable to secure bleeding-point by ligature. *Edebohls*, ii. F-41, 42.

With catgut sutures convalescence less tedious and uncertain; silk preferred for ligating uterine and ovarian arteries; catgut apt to be weakened by overpreparation in sterilizing. *Baldy*, ii. F-42.

Catgut used entirely in abdominal cavity; no occasion to regret its use. *E. C. Dudley*, ii. F-42.

Sterilized catgut employed. High temperature may be used to destroy germs without rendering catgut brittle. *A. Maclaren*, ii. F-42.

For past twelve years continuous suture of catgut employed in hysterectomy. Less danger, owing to its elasticity, of strangulating tissues. *S. C. Gordon*, ii. F-42.

Silk ligature alone used; no trouble ever experienced. Thick ligature apt to give more trouble than small thread, because former tied more tightly, reducing vitality of stump. *Noble*, ii. F-42.

Cases in which silk is used do better than those in which catgut is employed. *Polk*, ii. F-42.

FLUSHING AND DRAINAGE. Peritoneum should be flushed out before packing. *Jessett*, ii. F-42.

[View at present much entertained is that flushing causes dissemination of infectious process by carrying germs in unaffected regions. ED.]

Dry asepsis recommended, cleansing vagina beforehand with soap and water, no irrigation subsequently; dry gauze employed for sponging. *E. Kurz*, ii. F-42, 43.

If much difficulty in withdrawing uterus or there has been much oozing, safer to introduce glass drainage-tube. *Jessett*, ii. F-43.

Through-and-through drainge of Chopert, in which tube passing from the abdominal opening out through the vagina,—a valuable method. *Boisleux*, ii. F-45.

HÆMORRHAGE. To avoid hæmorrhage in hysterectomy, instead of making complete circular perivesical incision, two semicircular incisions made, one anterior and the other posterior, avoiding the mucous membrane of the lateral *culs-de-sac*. Bladder detached when posterior *cul-de-sac* opened; hæmostatic forceps applied on each side of

cervix, taking in base of broad ligament and vaginal mucous membrane at the point of lateral insertion into cervix, compressing uterine artery and utero-cervical branches, transverse, recurrent utero-vaginal, and even vesical. In six cases hæmostasis complete. *Condamin*, ii. F-43, 44.

PERITONEAL FLAPS. Stitching of flaps unnecessary and harmful; peritoneum may come into contact with diseased part and become contaminated. By closing exit risk of septic peritonitis much increased. *Jessett*, ii. F-43.

COMPLICATIONS AND SEQUELÆ OF HYSTERECTOMY. Case of ureteral fistula which developed as sequel to vaginal hysterectomy. *Kelly*, ii. F-46.

Small vaginal fistulæ developing a week or ten days after hysterectomy. Coincide with separation of eschars; probable result of damage to base of bladder. Right more frequently wounded than left ureter. *Richelot*, ii. F-46.

Wounding of ureter due to the fact that the right forefinger can separate tissues on left side of cervix easily while uterus drawn down by left hand holding volsella, but cannot so easily separate cervix from structures on opposite side. *Fournel*, ii. F-46.

Injury to ureters is rare if care is taken, in separating bladder from ureters, to go widely on both sides so as to lift ureters well out of the way and to introduce needle from before backward. *Jessett*, ii. F-46.

Hysterectomy followed by complete suppression of urine for 135 hours, when kidneys resumed function. *A. Skene*, ii. F-46.

Fistulous tract and other symptoms followed by discharge of a large gauze pad per rectum. Probably overlooked by nurse. *Elsner*, ii. F-46, 47.

Hysterectomy followed later by griping pains; gauze pad passed per rectum two months later. *Boldt*, ii. F-47.

ABDOMINAL HYSTERECTOMY.

STUMP. When stump transfixed, ligated, and dropped back into the cavity, the fact that its circulation is cut off by previous ligation of both uterine and ovarian arteries does not increase the danger of sepsis, provided it has not been infected during operation. *Walthard*, ii. F-44.

Uterus removed with appendages, leaving neck adherent to vagina. By this method stump formed by neck protected in abdominal cavity by suture of two sero-muscular flaps,—one taken from the anterior, other from the posterior, surface of the uterus. Mucous membrane of cervical canal destroyed by thermo-cautery. *Lanelongue*, ii. F-44.

Very seldom necessary to bury sutures in abdominal wall; gut preferred. *Waldo*, ii. F-44.

Stafford knot can always be depended on if proper precautions observed. *Tait*, ii. F-45.

MISCELLANEOUS METHODS. Vaginal cœliotomy. Uterus drawn down with forceps, *cul-de-sac* opened, ovaries and tubes drawn out, inspected, and removed if necessary. One death in sixty-four operations. *Dührssen*, ii. F-49, 50.

In Mackenrodt's method (opening *cul-de-sac* and separation of bladder), hæmorrhage insignificant, operation rapid, owing to employment of forcipressure *Swiecicki*, ii. F-50.

The sacral method the only one suitable for advanced cases of tumor. In many desperate cases mortality 10 per cent. *Schede and Wiesinger*, ii. F-50.

Vaginal in some cases, abdominal in others, always to be preferred to sacral method. *Prochownik and Lauenstein*, ii. F-50.

Chrobak's best, after trial of all others; twenty consecutive recoveries. Applicable where cervix not voluminous and where there are not such extensive bleeding surfaces to make free downward drainage desirable. *Cushing*, ii. F-47.

Sixty operations on pelvic organs by opening abdomen through anterior fornix of vagina. Longitudinal incision down the vagina; bladder dissected up; abdomen opened by blunt instrument; uterus drawn forward into incision, and ovaries and tubes drawn out and removed if necessary. Wound closed by two or more rows of catgut. *Martin*, ii. F-47.

New method to secure access to uterus in as short a time and with as little exposure of the organ as possible (*q. v.*). *N. Senn*, ii. F-47, 48.

New procedure which may be performed quickly and is attended with less danger than other operations; ligatures and sutures not required. *Richelot*, ii. F-48, 49.

PELVIC MASSAGE. Technique of pelvic massage as recommended by Thure-Brandt. Several patients treated by massage with gratifying success; treatment not applicable unless carried out for a long period, in cases of prolapse, when due to relaxation of pelvic floor. Treatment appears to rub out exudates and often to break or stretch adhesions. *Rumpf*, ii. F-118, 119.

Of great value in chronic parametritis, dysmenorrhœa, and amenorrhœa,—its true indications. Dangerous in acute affections accompanied by fever or suppuration. Diagnosis must be carefully made in each case. *Peltier*, ii. F-119.

Specimens from a case illustrating the injurious effect of massage in suppurating lesions of the appendages. Massage should be reserved for chronic cases without suppuration. *Pozzi*, ii. F-119.

Bad effects of massage in a woman with

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neoplasm in posterior *cul-de-sac*, and in a case of simple retroversion. Contra-indications should be clearly defined. *Bouilly*, ii. F-120.

Similar ill effects observed; obliged to perform laparotomy in one case and hysterectomy in another. *Lucas-Championnière*, ii. F-120.

Emphasizes upon rôle of constipation in many uterine diseases, especially metritis and deviations. Massage superior to purgatives and technique most simple. *Hugou*, ii. F-120.

INSTRUMENTS. New pessary for retroflexion; cradle shaped similar to Schultze's or Vulliet's pessary, but absence of posterior arch. *Boureart*, ii. F-121.

New cervical dilator to produce better results by uniform stretching of cervical fibres. *Upshur*, ii. F-122.

Double needle or cyst-elevator. *Borck*, ii. F-123, 124.

Vaginal speculum that may be used as perineal retractor in both dorsal and lateral postures; self-retaining; more convenient than Sims's. *Goelet*, ii. F-124.

Ligament-carrier for Alexander's operation. *Franek*, ii. F-124.

New method of pedicle ligation. Loops fixed by passage through substance of pedicle at points on opposite ends of their long diameter, in centre and circumference of pedicle. *Graves*, ii. F-124.

New uterine dilator capable of dilating uterus in six minutes; serviceable in a case of inability to dilate manually. *Lesser*, ii. F-124, 125.

Improved uterine dilator. *Long*, ii. F-125.

Set of uterine dilators designed for purpose of keeping cervix moderately dilated and thus maintaining uterine drainage. *Byford*, ii. F-126.

New intra-uterine dilator, irrigator, and Recamier curette combined. *Adler*, ii. F-126.

UVULA AND PALATE.

Case in which uvula cleft up to its junction with the palate, quite an area existing between the two organs. *Foster*, iv. D-52.

Case in which a conical uvula four centimetres long, and terminating with a bulb-like enlargement, failed to produce the least symptom, although it extended beyond the level of the tongue. *Kock*, iv. D-52.

PARALYSIS OF SOFT PALATE. Case of paralysis of the soft palate following non-diphtheritic anginas. *Bourges*, iv. D-54.

Case which during an attack of influenza was affected by paresis of the left side of the soft palate and of muscular membrane of left posterior portion of the pharynx with paralysis of left vocal cord. *Kustener*, iv. D-54.

TUMORS OF UVULA AND PALATE. Case of primary cancer of the uvula; removal; found to be a carcinoma keratodes. *Zurakowski*, iv. D-52.

Case of papillomatous tumor of the uvula formed of adenoid tissue. *Flatau*, iv. D-52.

Five unpublished cases of plexiform sarcoma, characterized by perithelial cellular proliferations, accompanied by elements of enchondroma, myxoma, lipoma, etc. Palatine sarcomata, like those of parotid gland, more often located on left side, never in the median line. Growth is slow. *Von Eisenmenger*, iv. D-52.

Case of alveolar sarcoma of soft palate, removal. Four months after operation parts perfectly normal. *Schmidt*, iv. D-53.

Case of sarcoma of palate successfully treated with toxins of erysipelas. *W. B. Johnson*, iv. D-53.

VACCINATION.

The time of year has an influence on the success of revaccination. Most favorable months are November, December, and March. *Marty*, i. G-63, 64.

Figures showing that scraping method is very superior to the puncture method. *Rafinesque and Raymond*, i. G-63, 64.

VAGINA, DISEASES OF.

From fourteen to twenty varieties of micro-organisms inhabiting vagina. Streptococci resembling pyogenes regarded as attenuated form. *Winter*, ii. F-84.

Cocci in series which could not be distinguished from streptococci of puerperal fever. Germs in vagina slip in from the ostium vaginæ. Vaginal secretions found to have marked power of destroying vitality of pyogenic organisms. Syringing vagina with antiseptic solution reduces this germicidal power. *Krönig, Menge*, ii. F-85.

Limit between bacterium-containing and bacterium-free portions of uterus a little above external os. *Wilson*, ii. F-83, 84.

ANOMALIES OF THE VAGINA. Case of lateral hæmatocolpos. Vagina double; right canal the seat of the atresia, its cavity divided in two by a diaphragm. Co-existence of single uterus with two vaginæ very rare. *Muret*, ii. F-89.

Absence of vagina with fair development of the ovaries. *Max Simon*, ii. F-90.

Vaginal cyst the size of a large melon in an infant. Death by retention of urine *Heaton*, ii. F-90.

Case of absence of vagina with hæmatometra. *Da Costa*, ii. F-90.

Cases of vaginal septa. *L. Gillion, Mertens, Torrey*, ii. F-90.

ATRESIA OF THE VAGINA. Presence for six years of bobbin in vagina causing marked cicatricial stenosis. *Winternitz*, ii. F-90.

Case of hæmatocolpos after adhesive inflammation of vagina. *Winternitz*, ii. F-90.

In acquired atresia of vagina some operators have inadvertently opened bladder or rectum while trying to find upper extremity of vagina. Best to first open posterior vaginal wall below the seat of the atresia and separate the rectum from the vagina until the collection of blood is reached. May be assisted by assistant's finger in rectum. *Heydenreich*, ii. F-91.

CANCER OF THE VAGINA. Primary cancer of vagina relatively rare. May depend upon slow evolution of the affection. *Labusquière*, ii. F-91.

But 1 case observed among 5000 women; but 18 cases observed at the Frauenklinik of Berlin between 1886 and 1894. In 13 the neoplasm had developed on the posterior wall. *Martin*, ii. F-91, 92.

Deep vagino-perineal incision from the vaginal *cul-de-sac* to the fourchette, from there backward in a line going from the anus to the ischium. *Dührssen*, ii. F-92.

PERINEAL METHOD. Used in two cases; one survived two years, the other one year. *W. Thorn*, ii. F-92.

Similar operation, but, as the neoplasm involved two lateral walls, made an incision first in median line. Results good. *H. Thomson*, ii. F-92, 93.

HYDATID CYSTS OF THE VAGINA. Hydatid cysts of Douglas's *cul-de-sac* not as rare as is generally supposed. Nearly always occupy cellular tissue below *cul-de-sac*. *Dermigny*, ii. F-93.

FISTULÆ.

RECTO-VAGINAL FISTULA. Case in which purulent collection in Douglas's *cul-de-sac* had been incised through vagina and had afterward opened spontaneously into rectum. Kraske's sacral incision; rectal opening severed, leaving wound partially open in front of fistula, packing with iodoform gauze. Two and a half months after, wound entirely closed. Indicated in cases complicated by an intermediary suppurating pouch between vaginal and rectal opening. *Heydenreich*, ii. F-93.

Case of recto-vaginal fistula due to a foreign body—an ointment-pot—inserted into the vagina fourteen years before. *Ségond*, ii. F-94.

VESICO-VAGINAL FISTULA. There are cases which cannot be operated through vagina, such as juxtacervical fistulæ or atresia of the vagina. Case in which direct passage through bladder by suprapubic cystotomy was successfully made. *Pousson*, ii. F-94, 95.

Three cases cured by separating vesico-vaginal septum, suturing each cavity alone with catgut. *Winternitz*, ii. F-95.

Operation from within bladder through suprapubic opening, as prepared by McGill. Vertical incision gives sufficient room. *J. C. Bond*, ii. F-95.

Case in which destruction of the parts was so great that it was deemed impossible to construct a new urethra in the usual way. Special operation performed. *Emmet, Hirst*, ii. F-95.

Case of fistula so large that it was possible to see urine coming out of the ureters and in which ureters opened on the anterior surface of bladder, owing to cicatricial adhesions. *Forster*, ii. F-96.

URETERO-VAGINAL FISTULA. Case in which the fistula cured of itself in about twenty days. Ureter less exposed than is usually believed unless deviated from its course, as in cancer. *Poirier*, ii. F-96.

Suturing the divided ends and applying immovable intra-urethral sound. Operation of election, as no fistula is left. *Tuffier and Levi*, ii. F-96, 97.

VESICO-UTERO-VAGINAL FISTULA. Three cases. Genu-pectoral position. Local anæsthesia by cocaine; cervix incised at level of fistula; edges widely freshened, sutured with catgut; tear in cervix treated as in ordinary trachelorrhaphy. Recovery in all. *Lanelongue and Faguet*, ii. F-96.

VARICELLA—CHICKEN-POX.

PATHOLOGY. In 872 cases, periods of incubation varying from three to twenty-six days; in 775 of the cases incubation between twelve and seventeen. Varicella has nothing in common with variola; period of incubation varies greatly. An attack of variola usually confers immunity. Vaccinated children readily contract varicella. *Semtschenko*, i. H-72.

Epidemic in a maternity hospital; incubation fourteen days. Disease may readily affect nursing and newborn infants, contrary to opinion of classical writers. Weak children, born before term, support the disease as well as others, provided no previous infectious taint present. Varicella appears to be most contagious in the beginning, before the eruption. *Apert*, i. H-72.

Case of varicella bullosa runs its course very quickly,—fortnight or three weeks. Chicken-pox epidemic at the time; four cases in the same house. Typical varicella covering whole body. Importance of keeping this rare complication in mind lest a case of it be admitted in hospital wards for one of pemphigus, and start an epidemic of chicken-pox. *George Morgan*, i. H-73.

Not so rare as Morgan suggests. Two cases seen within a year. *J. B. Stephenson*, i. H-73.

Report of several cases. *T. E. Stuart*, i. H-73.

CONCOMITANT AFFECTIONS. Case of concurrent varicella and scarlatina. *S. H. Snell*, i. H-73.

Several cases in which varicella and measles co-existed during a double epidemic.

VARICELLA — CHICKEN-POX (continued).

Eruption of varicella invariably appeared first; had not entirely disappeared when eruption of measles manifested. *Szczypiorski*, i. H-73.

Case in which incubation period delayed by measles. *Cheesman*, i. H-73.

Case complicated by gangrene of the scrotum. *Spivak*, i. H-73.

Case complicated by parotitis. *Cheesman*, i. H-73.

May be complicated by arthritis during convalescence. Infection due to streptococcus. Two forms: One benign, resembling rheumatism, terminating in resolution; other serious, suppurating, causing systemic infection. *Braquehaye and de Rouville*, i. H-73, 74.

Six cases of renal disease among twelve patients seen during an epidemic of varicella. Severity varied from albuminuria to actual nephritis—earliest observation fourth or fifth day after stage of desiccation. Three fatal, two of these secondary: catarrhal pneumonia and gangrene and lobar pneumonia. Urine in varicella should be as carefully watched as in a case of scarlatina. *Cassel*, i. H-74.

Case, in a child 8½ months old, which proved fatal owing to the fact that the eruption covered the entire body. Death on tenth day. *Nisbet*, i. H-74.

Inclined to doubt correctness of Nisbet's conclusion as to cause of death. Similar case in which patient died from effusion into subdural and arachnoidal spaces and œdema of glottis resulting from purpura hæmorrhagica, which complicated the initial trouble,—chicken-pox. *Schwartz*, i. H-74.

VARICOCELE.

Most likely cause, compression of spermatic vein by enlarged lymphatic glands, as shown by autopsy of a case. Not progressive, but its co-existence with hæmaturia suggestive of grave, if not cancerous, enlargement of the kidney. *Legueu*, i. E-32.

TREATMENT. Subcutaneous method has not received sufficient attention. In 107 operations, 48 performed subcutaneously, 93.75 per cent. of non-septic recoveries. Compares very favorably with results of open methods. For subcutaneous operations silk ligatures should be boiled for one-half hour, then kept in perchloride solution 1 to 500 or in 1 to 20 carbolic lotion. *Fred. C. Wallis*, iii. E-26, 27.

Incision from three-fourths inch to one and one-half inches in length directly over external ring, in direction of cord. Cord and envelopes exposed; veins brought into view by employment of a blunt hook. Silk or silk-worm-gut ligatures as in subcutaneous operation. *G. Frank Lydston*, iii. E-27.

New varicocele-needles for use in subcutaneous ligation. *W. W. Bowes, J. H. Lowry*, iii. E-27, 28.

Calcification of tunica vaginalis as complication of an old hydrocele. Entire mass removed. *Roswell Park*, iii. E-28.

Case in which numerous free bodies were found in tunica vaginalis. *G. Sultan*, iii. E-28.

Case of pachyvaginalitis, non-tubercular, non-syphilitic, caused by traumatism. Affection characterized by false membranes, which become organized and which by degrees, transform the natural serous membrane into a coating, resembling leather, from two to three centimetres thick. *S. Duplay*, iii. E-28, 29.

VARICOSE VEINS.

PATHOLOGY. Increase of blood-pressure in the veins first causes dilatation; elastic tissue of the wall resists excessive pressure; hypertrophy and hyperplasia develop. Muscular and elastic tissues disappear to a great extent, first in internal and middle coats, partly also in external coat. *Menahem Hodara*, iii. J-21.

TREATMENT. By multiple peripheral ligature or excision of the veins, the general cause of the dilatation is not affected and recurrences are frequent. Trendelenburg's method a distinct advance; ligature of the internal saphenous vein, into which all the peripheral veins empty. Rebellious varicose ulcers quickly yield. *Winiwarter*, iii. J-21, 22.

Trendelenburg's method used in 41 cases; 32 definite recoveries. *G. Perthes*, iii. J-22.

Twenty-five cases treated; eleven seen at the end of six months. All showed disappearance of pain and discomfort. Cure maintained for two years in two cases, from one to two years in seven, and less than a year in three; but in only two cases had the varices entirely disappeared. *Faisst*, iii. J-22.

Ligature dangerous and useless. Division of veins; wound treated as an open one and no sutures introduced (*q.v.*). *W. Thornley Stoker*, iii. J-22, 23.

"Garter" incision. Circular incision through skin and areolar tissue down to deep fascia, across all subcutaneous vessels. Ligature above and below of cut ends of these vessels effectually prevents return-flow of blood through superficial channels. All venous circulation driven into deep veins beneath deep fascia, where channels better supported. *D. M. Moir*, iii. J-23.

One hundred and sixty-four cases treated without a single failure by injections of an aqueous solution, 1 part of iodine and 9 parts of tannin; 8 drops injected into orifice of a short cannula inserted into one of the

principal varicose confluents, patient standing (*q.v.*). *Delore*, iii. J-24.

[Intra-venous injections of coagulating fluids have been abandoned as dangerous and uncertain. C. FENGER, Assoc. Ed., iii. J-24.]

VARIOLA.

PATHOLOGY. That causes of small-pox and vaccinia are bacteria seems quite impossible in the light of investigations so far made. Most able bacteriologists believe causes of these diseases would be found to be protozoa. *George Dock*, i. G-58.

Confirmation of observations of Guarnieri that in certain animals cells of corneal epithelium which form the boundaries of vaccination-wound always contain intracellular parasites, belonging to the sporozoa. *Sicherer*, i. G-59.

Above highly-refracting particles stain with acid hæmatoxylin, but show preference for eosin, carmine, and fuchsin. These organisms present series of forms affording exact homology with bodies described as sporozoa in psorospermosis of urinary tract, squamous epithelioma; cancer of the breast, uterus, etc., and various sarcomata. *J. J. Clarke*, i. G-59.

In stained preparations of vaccine-lymph taken antecedent to full maturity of vesicles minute bacillus can be demonstrated in considerable numbers; cannot be grown on any of ordinary media; developed typical vaccinia. *Copeman and Klein*, i. G-60.

The dispora variolæ, the specific cause of the disease, presents same appearance as the one described by Plaut,—colorless, non-motile bacillus, showing spores, one at each end, early in its development. Spores are the main source through which variola and vaccinia reproduced. *J. Christian Bay*, i. G-60.

Toxicity of urine about normal at the stage of eruption. Diminishes during fever of suppuration, increases markedly during defervescence and returns to a normal in one, two, or three days. Frequently there is a veritable unloading of the urotoxic material, corresponding almost exactly to the urinary crisis. *Auché and Jonchères*, i. G-60.

Interesting case of paraplegia occurring during the course of a fatal variola. Streptococci and coli bacilli found in the spinal cord and coli bacilli alone in several other organs. Myelitis due to the streptococcus. *Auché*, i. G-61.

Case of acute disseminated myelitis due to the streptococcus during variola. *Oetlinger and Marinesco*, i. G-61.

Case of casual cow-pox in a man. Four excellent marks of primary vaccination; re-vaccinated, but, as expected, without result. *Bucknill*, i. G-61.

Small-pox among parents not followed by any effect on children in respect of their receptivity to the influence of vaccination. If both parents have had small-pox before conception, influence on the infant not more marked than when mother only has had the disease. *Auché*, i. G-61.

TREATMENT. Blood-serum of a heifer calf, vaccinated 4 weeks previously, ½ ounce injected subcutaneously and again after ten hours. Treatment exercised modifying influence especially on eruption. *Kinyoun*, i. G-62.

Above serum used during epidemic in five cases of small-pox. Four cases made excellent recovery. Serum seems to modify course of the disease, influencing distinctly character of eruption and preventing pitting. *Llewellyn Eliot*, i. G-62.

Similar experience with three cases, improvement set in shortly after use of serum. *E. H. Wilson*, i. G-62.

In zymotic diseases a wet pack of warm milk valuable. Blankets laid upon a mattress covered by a sheet saturated with 1½ pints of fresh, warm milk (not boiled). Patient laid upon the sheet, which is then wound tightly round him, arms left bare. Blankets then packed over him and left an hour. In eighteen cases in small-pox lazaretto at Kimberly diseased aborted. *W. B. Sampson*, i. G-62, 63.

Red-light method of treatment. Exclusion of chemical rays must be absolute; even a brief exposure to daylight may produce suppuration. Glass must be of a deep-red color; if curtains are employed they must be very thick or in several layers. *Niels R. Finsen*, i. G-63.

VESICAL CALCULUS.

Natives of India living in sections where chief article of diet is vegetable or cereal deficient in common salt are particularly prone to calculus. *A. E. Roberts*, iii. E-38.

Lateral lithotomy and litholapaxy safer operations in children than suprapubic. *Barling*, iii. E-38, 39.

Ten cases of suprapubic cystotomy in children varying from 18 months to 12 years, in which vesical wound tightly sutured and no catheter left in urethra. Recovery in all without complications. *Rasumovsky, Darjuskinski, Folinea*, iii. E-39.

Complete suture of the bladder-wound, provided that organ be healthy. *Folinea*, iii. E-39.

[These results disprove conclusions of Barling that extraction of stone from children by suprapubic route fraught with much danger. In the English statistics suprapubic vesical wound apparently left open, in all probability one of chief causes for increased mortality. Statistics of English surgeons in India suggest that litholapaxy should always be the operation of choice in children.

VESICAL CALCULUS (continued).

KEYES AND FULLER, Assoc. Eds., iii. E-40.]

Rectal cystotomy superior to other cutting operations in many cases of stone. *L. Bauer*, iii. E-40.

VOMITING.

Particularly when due chiefly to nervous disturbance or marked gastric irritability, or following operations, acetanilid, 2 grains every hour until 6 grains taken. *H. A. Hare*, v. A-4.

One-fourth drop of carbolic acid every hour for a few hours. *Keen*, v. A-49, 50.

Solution of copper arsenite made by dissolving $\frac{1}{100}$ grain in 4 ounces of distilled or boiled water; a teaspoonful every fifteen minutes for two or three hours. *John E. Bacon*, v. A-58.

VULVA, DISEASES OF.

CANCER OF THE VULVA. Case considered as answering affirmatively question whether epithelioma of vulva can begin as a chronic and intractable inflammation. *J. W. Taylor*, ii. F-87.

There is a rare form of syphiloderm of vulva so closely resembling epithelioma as to be differentiated from it only by therapeutic test or by the microscope. Case of inoperable epithelioma treated by antisyphilitic measures; rapid improvement. *Hirst*, ii. F-87.

KRAUROSIS VULVÆ. Progressive cutaneous atrophy of the vulva a distinct disease. Essentially inflammatory with marked progressive atrophy after stage of hyperæmia and infiltration. *Reed*, ii. F-86.

Majority of cases classified as granular vaginitis, kraurosis vulvæ, and vascular degeneration of vulva nothing more than varying forms and conditions of trachoma. *A. W. Johnstone*, ii. F-86, 87.

VULVITIS. Acute gonorrhœal vulvovaginitis and urethritis in an infant at birth. *Morgenstern*, ii. F-85.

In two cases of simple muco-catarrhal vulvitis, absence of gonococci and presence of several varieties of microbes,—coli bacillus, staphylococcus albus, and the streptococcus pyogenes. *Coyne and Auché*, ii. F-85, 86.

Epidemic of vulvitis in children due to use of a rectal thermometer in all the patients. *Weill and Barjon*, ii. F-86.

Discharge from vulva may undoubtedly set up gonorrhœa in anus or rectum in careless subjects. *Hartmann*, ii. F-86.

WARTS.

Case of warts of mucous membrane coincident with warts of the hand, due to self-inoculation. *G. Variot*, iv. A-54.

Following mixture recommended: ℞ Sublimed sulphur, 2½ drachms; glycerin, 6½ fluidrachms; pure acetic acid, 1½ fluidrachms. Applied once a day to regions covered with warts; growths shrivel up and ultimately disappear. *Kaposi*, iv. A-55.

WRITERS' CRAMP.

Two principal varieties,—spasmodic and paretic. Often inherited. General and local treatment by massage and studied movements. Suggestion. *Raymond*, ii. C-22.

Case in a telegraph-operator cured in fifteen sessions of applications of static electricity of fifteen minutes' duration at first, then twenty minutes. *Monell*, ii. C-23.

Case in telegraph-operator, cramp extending to trapezius and sterno-mastoid. Hypnotism and injections of atropine deeply into muscle. Complete recovery in two months. *Putnam*, ii. C-22, 23.

Almost similar case treated with hyoscyamine hydrobromate. *Riggs*, ii. C-23.

Associated contractures the result of customary attitude. Writers' cramp may be of purely psychical origin. *Baker*, ii. C-23.

Cases in which nodules were disseminated along extensor muscles of forearm, especially on tendons of first three fingers. Secondary, due to neurosis. *Pick*, ii. C-23.

X-RAYS.

The physical properties of the Rœntgen rays have been so generally published that the object of the Cyclopædia of Treatment, the presentation of nothing but practical deductions, need not be departed from. Even here the strides already made have been so great that the presentation of anything but recent data seems inadvisable. All our readers know, for instance, that an outline of the osseous system may be seen and photographed, in virtue of the fact that certain tissues are penetrated by the X-rays, while others are not, and that any marked deviation from the normal, as regards shape, continuity, etc., may thus more or less readily be discerned, etc., etc.

In order to thoroughly understand the present scope of the Rœntgen rays as an aid to diagnosis, an important fact must be borne in mind,—*e.g.*, that the process furnishes us but a photographic representation of the *shadow* of the opaque structures thus brought to our view. This fact necessarily reduces the field within bounds which, unsurpassed, would eventually give the Rœntgent rays but the position of a valuable adjunct to the other means of diagnosis at present at our disposal. It is fair to assume, however, that human genius will but use the facts now known as a stepping-stone to far greater possibilities.

A recent radiograph obtained by Imbert and Bertin-Sans, of Paris (*Revue Générale des Sciences*, June 30, 1896), gives a perfect

outline of the skelelon of the newborn, the osseous tissue having completely intercepted the rays, the cartilaginous tissues, on the contrary, having been traversed. It is thus shown that the progress of ossification can readily be followed, and any departure from the normal noted and perhaps corrected by suitable remedial measures. The skin and the muscles present various degrees of transparency,—a possible land-mark for the early detection of organic changes. Sydney Rowland, of London (*Archives of Clinical Skiagraphy*, April 2, 1896), publishes another radiograph, which the author terms "skiagram," of a well-nourished healthy child, aged 3 months, in which is shown more or less distinctly, in addition to the above-described features, an outline of the thoracic and abdominal organs, the intestines, heart, and liver casting definite shadows.

John McIntyre, of Glasgow (*Universal Medical Journal*, June, 1896), was able to photograph the larynx in the human subject, the picture obtained showing the base of the tongue, hyoid bone, thyroid and cricoid cartilages, with epiglottis; the opening at the upper part of the œsophagus was also seen, and the spine was indicated behind. He had also photographed the bones of the face in health and disease, in the latter case showing destruction of the upper jaw, the result of malignant disease. Experimenting on the dead subject, he had been able to obtain excellent photographs of foreign bodies in and around the region of the larynx, as well as ossification in the cartilages. An interesting case is recorded in which a foreign body gave rise to pain at the cardiac orifice of the stomach. The fluorescent screen showed, on the contrary, the shadow of the coin opposite the third dorsal vertebra.

Judging from the radiographs so far published, the lungs are so easily traversed by the Rœntgen rays that but little information would seem to be obtainable as far as diagnosis is concerned. Therapeutically speaking, however, some interesting observations have been recorded.

Sheridan Delepine, of London (*British Medical Journal*, February 29, 1896), concluded, after a series of experiments, that micro-organisms were not affected by the Rœntgen rays, but by the end of June Lortet and Genoud showed before the Société de Biologie, of Paris, that experimental tuberculosis could be attenuated through their influence. Eight guinea-pigs having been inoculated in the inguinal region, three were exposed one hour daily to the influence of the rays, while the five others were left untreated. The latter soon showed suppurating abscesses in the groin and along the thighs and marked emaciation; the former showed small inguinal buboes, which, however, soon became reduced in volume, the animals remaining in an excellent condition. The authors therefore conclude that superficial tuberculous processes, including those of the pleura and mesentery, may be advantageously modified by the X-rays. In children they believe it possible to influence pathological processes of the deep structures.

The detection of foreign bodies in the œsophagus has already been facilitated in several instances. Very interesting in this connection is the case of a child, aged 2½ years, reported by J. William White, of Philadelphia (*University Medical Magazine*, June, 1896), in which a jack-stone had been swallowed. The foreign body was easily located on a level with the space between the second and third dorsal vertebra and removed by gastrotomy.

Wolf Becker, of Berlin (*Deutsche medicinische Wochenschrift*, March 26, 1896), showed that the salts of the metals which are not permeable to the rays show the same property when in solution, and obtained an imperfect outline of the stomach of a guinea-pig by means of a lead-acetate solution introduced into that organ. This solution being poisonous, J. C. Hemmeter, of Baltimore (*Boston Medical and Surgical Journal*, June, 1896), suggested that a pure gutta-percha bag attached to a thin œsophageal tube be first introduced into the stomach and then filled with the solution, the bag, as it is being filled, adjusting itself to the shape of the organ. The author also suggests that an emulsion of bone-powder might also be used as an intercepting agent. The *London Lancet* published an interesting radiogram taken through the body of a dead monkey. In the right kidney had been placed a uric-acid calculus and in the left kidney a gall-stone. The uric-acid calculus showed plainly by the new process, while the gall-stone could hardly be distinguished from the surrounding tissues.

A good radiogram of the living heart was obtained by McIntyre, of Glasgow ("Practical Photography," by Snowden Ward, of London, 1896). A correct estimate of any enlargement, abnormal location, etc., may thus be obtained and the scope of the other methods of diagnosis at our disposal enlarged.

It is doubtless in surgery that the Rœntgen rays will prove most useful. The fact that bullets or other metallic projectiles or foreign bodies, such as needles, nails, etc., may easily be located when in the hand or foot is, of course, known. Julliard and Soret, of Geneva (*Revue Médicale de la Suisse Romande*, April 20, 1896), were able to exactly locate near the elbow a bullet which with the aid of other means, including the Trouvé electrical probe, they had been un-

X-RAYS (continued).

able to find. While no idea of the depth at which the projectile lay could be obtained from the shadow cast upon the sensitive plate, the direction was nevertheless exact, and the knife could be handled with the greatest precision. In a similar case, Lodge, of Liverpool (*British Medical Journal*, February 22, 1896), was able to find a pellet of lead lost in the left hand or forearm of case. The metal was not found in a fleshy part readily penetrable by the rays, but among the bones of the wrist.

Fractures and dislocations offer a broad field for the advantageous employment of the Rœntgen rays not only as regards their recognition, but also in connection with the progress made in the curative process. Hertoghe, of Antwerp (*Bulletin de l'Académie Royale de Medecine de Belgique*, May 30, 1896), in a case in which severe pain persisted after a fracture of the wrist, found that the styloid process had been completely torn off and that osseous centres were beginning to show themselves in various parts of the neoplastic reparative elements. Divelshauvers-Dery, of Liége (*Annales de la Société médico-chirurgicales*, March, 1896), was able to ascertain, in a case of fracture of the ulna, that the fragments were not in apposition, the radiogram being obtained without in the least disturbing the bandage.

An excellent radiogram of an intercondyloid fracture of the humerus was published by W. W. Keen, of Philadelphia, in the *American Journal of the Medical Sciences*, March, 1896.

Perhaps the clearest radiogram of a dislocation yet published is that of a backward dislocation of the elbow, by Howard Marsh (*British Medical Journal*, May 30, 1896). A second illustration shows that the displacement had been completely corrected.

Deformities of bones, not only of those of the hands and feet, but also of the larger portion of the extremities, have given excellent pictures. In a case reported by W. J. Morton, of New York (*New York Medical Journal*, April 11, 1896), the features revealed could hardly have been recognized by the usual metheds. Sydney Rowland, of London (*British Medical Journal*, April 25, 1896), in the case of rickety child, detected multiple exostoses of the femur, some of which had not been recognized before the radiographic examination. The same author obtained a good negative of the pelvis and vertebral column in a case of suspected calcified tuberculous glands, no evidence of calcification being found. The possibility of obtaining clear radiograms of the spinal column and pelvic bones is thus shown. Keen, of Philadelphia (*American Journal of the Medical Sciences*, March, 1896), published the radiogram of an elbow upon which resection had been performed. The fact that the dressing and bandage need in no way interfere with the procedure makes it possible in such cases to observe the gradual advance of the reparative process and to regulate interference accordingly. In the same journal Edward P. Davis shows that the diagnosis of pregnancy will find in the Rœntgen rays an effective aid. In the space at our disposal it is impossible to give more than an outline of the main disorders in which the Rœntgen rays may advantageously be employed.

The fact that photography is a necessary adjunct of the primary process naturally limits the use of the method to comparatively few cases, especially since an exposure of two hours is sometimes necessary to obtain a clear image of the thicker portions of the body,—the thigh, the thorax, etc. There is every indication, however, that the entire process will be greatly simplified and that, in the course of experimental work, new practical means will be evolved. Rœntgen, for instance, accidentally noticed that, when X-rays impinged upon a card covered with barium platinocyanide, the salt glowed in darkness and that the rays penetrated the card. If the hand is held between the tube and the screen the shadow of the bones can readily be seen in front. The value of this discovery may readily be appreciated. Again, Salvioni has described instruments enabling the eye to see objects which are covered with material heretofore entering into the opaque series, etc. On the whole, it is evident that the present scope of the entire process can in no way furnish an estimate of the possibilities of the future. [Editor.]

XERODERMA.

Case much improved by thyroid extract in 5-grain doses three times a day. *David Walsh*, iv. A-55.

In two cases of xeroderma pigmentosum micro-organisms could neither be detected in the tissues nor in the blood, which showed numerous eosinophile cells. Disease a special dystrophy of unknown pathogenesis. *Tommaso de Amicis*, iv. A-55.

XEROSTOMA.

Case in which there had been a dry mouth for five years with intermittent parotitis every three or four weeks for two years. Mouth dry at time of menopause; no blockage of Stenon's ducts. *Battle*, iv. A-55, 56.

YELLOW FEVER.

Red blood-corpuscles very slightly diminished present under the microscope peculiar appearances which seem to be referable to the action of extraneous matters in the blood.

Rapid dissolution and putrefaction noticeable features of corpuscles after the blood extracted from the body. *Joseph Jones*, i. G-56, 57.

[The rapid dissolution of the blood and consequent deposition of pigment are, probably, chiefly due to the presence of bile in the plasma. One of the best methods for obtaining hæmatin-crystals from the blood is by the addition of bile. JUDSON DALAND, Assoc. Ed., i. G-57.]

Theory of transmission of yellow fever by the mosquito. Inoculation experiments: Interval between the application of contaminated mosquito to a susceptible person and appearance of first symptoms of a mild attack varies between five and twenty-five days. *Ch. Finley*, i. G-57, 58.

ZONA.

Zona of the face may be accompanied by massive gangrene extending from the centre and affecting the subcutaneous tissue as well as the skin. *H. Hallopeau and J. Damany*, iv. A-29.

Case of recurrence on the same side with interval of about forty years. *W. Dubreuilh*, iv. A-29.

Main elements in treatment eruption and pain. First, a saline purgative, sodium sulphate especially. Local treatment of region, which must be maintained absolutely dry; may be covered with cotton wadding sprinkled with ℞ Starch, 2 ounces; zinc oxide, 4 to 5 drachms; camphor-powder, 15 to 45 grains; powdered raw opium, 15 grains. In old people eruption must be watched with care to avoid ulceration. For neuralgia, the following pill: ℞ Extract of datura stramonium, $\frac{1}{6}$ grain; extract of hyoscyamus, $\frac{1}{6}$ grain; extract of belladonna, $\frac{1}{12}$ grain. Four pills to be taken daily. If there is no improvement in the pain, antipyrin internally. For neuralgia following eruption, antipyrin subcutaneously. *Albert Robin*, iv. A-29, 30.

GENERAL INDEX OF FIVE VOLUMES.

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PARIS.

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1116. Internationale Monatschrift zur Bekämpfung der Trinksitten, Bremerhaven.
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1118. La Higiene, Havana.
1119. Medicinische Novitäten, Leipzig.
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1121. Prensa Medica de Malaga.
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1146. Chugai Ijishimpo, Tokio.
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1188. Atlantic Medical Weekly, Providence.

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1205. Langdale's Lancet, Kansas City.
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Quin. Sulph.....aa grs. xxx
Pulv. Ipecac et Opii.....grs. x
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Ext. Aconiti.....gr. ij
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Alternated with
℞ "Antikamnia and Codeine Tablets".....No. xx
Sig.—One every three hours.—Hot Springs Med. Jcur.

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Elix. Simplex.....ʒ iv
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Drunkard's Insomnia.
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Elixir Simplex.....ʒ ij
Syr. Aurant. Cort.....q. s ʒ vj
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Uterine Contractions Leading to Abortion.
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Sulph. Quinia.
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Nervous Headache. (Chronic.)
℞ Antikamnia (Genuine).....ʒ ij
Tinct. Hyoscyam.
Tinct. Gelsemii.....aa ʒ j
Elixir Calisaya.....ʒ vj
Mx. et Sig.—One teaspoonful at bedtime.—N. O. Med. Jour.

Convulsions. (Hysterical.)
℞ Antikamnia (Genuine).....ʒ iss
Zinci Valer.....gr. xx
Mx. ft. Caps. No. xviij.
Sig.—One every two to four hours during the attack.—Am. Med. Rev.

Restlessness and Nervousness.
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Facial Neuralgia.
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Ext. Gelsemii.....gr. vj
Ext. Hyoscyam.....gr. xviij
Ext. Aconiti.....gr. ij
Mx. ft. Caps. No. xviij.
Sig.—One capsule every three or four hours.—Neurologist.

Dysmenorrhœa.
℞ Antikamnia (Genuine).....ʒ ij
Camphor Pulv.....gr. xxx
Ext. Hyoscyam.....gr. xv
Mx. ft. Caps. No. xv.
Sig.—One every two or three hours.—Matthews' Med. Quarterly.

Sedative Powder—Painful Menstruation.
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Mx.—Make capsules No. xij.
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Pain in Grip, Influenza, etc.
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Salol.....ʒ ss
Quinia Sulph.....grs. xxiv
Spts. Vin. Gall.....ʒ ij
Mx. Sig.—Teaspoonful every two hours.—Maryland Med. Journal.

Depression. (From Opium Habit.)
℞ Antikamnia (Genuine).....ʒ ij
Tinct. Capsici.....ʒ ss
Con. Tinct. Aven. Sat.....ʒ j
Elixir Brom. Potass. q s.....ʒ viij
Mx. et. Sig.—Teaspoonful four to six times daily.—N. Y. Polyclinic.

Migraine, Headache, etc.
℞ Antikamnia (Genuine).....ʒ j
Potassi Brom.....ʒ ij
Sacch. Alb.....ʒ j
Mx. ft. Cht. No. xij.
Sig.—Take one every two hours.—Med. and Surg. Jour.

Night Sweats of Pulmonary Tuberculosis.
℞ Antikamnia (Genuine).
Zinci Sulph.....aa gr. xxx
Ext. Hyoscyam.....gr. x
Ext. Nucis Vom.....gr. iij
Mx. ft. Caps. No. x.
Sig.—Take at bed-time.—Lancet.

Pneumonia, Especially with Restlessness.
℞ Antikamnia (Genuine).....gr. vj
Syrup Doveri.....ʒ j
Tinct. Digitalis.....gtt. iv
Repeat every three to six hours.—Occidental Medical Times.

Threatened Abortion—Ovarian Neuralgia.
℞ Antikamnia (Genuine).....gr. vj
Fld. Ext. Viburnum Prun.....ʒ j
Morphia Sulph.....gr. 1-8
Mx. Sig.—Repeat in three or four hours.—Am. Gynæcol. Jour.

Chronic Rheumatism and Neuralgia.
℞ Antikamnia (Genuine).
Cinchonid. Salicyl.....aa ʒ j
Mx. ft. Cap. No. xx.
Sig.—Take four a day.—Leonard's Illustrated Med. Journal.

Insomnia. (From Mental Strain.)
℞ Antikamnia (Genuine).
Sodium. Brom.....aa ʒ ij
Mx. ft. Chart No. xx.
Sig.—One powder half an hour before retiring.—N. Y. Med. Jour.

In Grip, Neuralgia, Rheumatism.
℞ Antikamnia (Genuine).....ʒ j
Sulph. Quinia.....gr. xxiv
Sulph. Morph.....gr. j
Mx. ft. Chart No. x. As required.—Times and Register.

Dysmenorrhœa when Menorrhagia Coexists.
℞ Antikamnia (Genuine).....ʒ ij
Mx. ft. Cht. No. xij.
Sig.—One every three hours.—Medical Mirror.

Gastric Catarrh of Drunkards.
℞ "Antikamnia and Quinine Tablets".....No. 24
Sig.—One every two or three hours.—Quarterly Jour. Inebriety.

Malarial Fever, Ague, etc.
℞ "Antikamnia and Quinine Tablets".....No. xxiv
Sig.—One every three hours as occasion requires.—Med. News.

Nervous Depression. (Alcoholic.)
℞ Antikamnia (Genuine).
Tinct. Capsici.....aa ʒ ij
Tinct. Cinchon. Comp. q. s....ʒ iv
Mx. et Sig.—Teaspoonful three times daily.—Jour. Nervous Diseases.

Vomiting of Pregnancy.
℞ Antikamnia (Genuine).....ʒ j
Cocaine Mur.....gr. j
Mx. ft. Caps. No. x.
Sig.—One capsule every three or four hours.—Amer. Gynæcol. Jour.

Pains Preceding Labor.
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Sig.—One as directed.—Amer. Surg. and Gynæcol.

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